

EXHIBIT 23

CGA C-7—2014
**GUIDE TO CLASSIFICATION
AND LABELING OF
COMPRESSED GASES**
TENTH EDITION

CGA
Compressed Gas Association
The Standard For Safety Since 1913

EXHIBIT

0006

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Work Item 15-014
Hazard Communication Committee

NOTE—Due to the extensive changes in this document, technical changes from the previous edition are not identified.

NOTE—Appendices A, B, C, D, E, F, and G (Normative) are requirements.

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Contents	Page
1 Introduction.....	1
2 Scope	1
3 Responsibility	2
4 Definitions.....	2
5 Label and marking description	5
5.1 U.S. Department of Transportation/Transport Canada.....	5
5.2 U.S. Occupational Safety and Health Administration	5
6 General principles	7
6.1 Gas mixtures	7
6.2 DOT-4L/TC-4LM liquid cylinders	8
7 Specific requirements.....	8
7.1 Label content for hazard communication	8
7.2 Label content for transport	9
7.3 Label content for medical applications	9
7.4 Mixture classification	9
8 Label groups.....	10
9 Illustrative labels.....	13
9.1 Asphyxiant gases	14
9.2 Flammable gases	19
9.3 Flammable liquids.....	33
9.4 Pyrophoric materials.....	35
9.5 Oxidizing gases and air	38
9.6 Refrigerated liquefied gases.....	42
9.7 Toxic liquids and gases.....	48
9.8 Toxic and corrosive liquids and gases.....	60
9.9 Toxic, oxidizing, and corrosive gases.....	68
9.10 Corrosive liquids and gases	72
10 References	75
11 Additional references.....	76
Figures	
Figure 1—Inhalation hazard label	6
Figure 2—Cryogenic liquid label	6
Figure 3—Marine pollutant mark.....	6
Figure 4—GHS pictograms	7
Tables	
Table 1—Hazard statements & associated signal words.....	9
Table 2—Label groups by principal hazard.....	10
Appendices	
Appendix A—CGA marking system for compressed gas cylinders (Normative).....	77
Appendix B—CGA labeling guide for compressed medical gases classified as drugs (Normative)	84
Appendix C—CGA labeling guide for compressed medical gases classified as medical devices (Normative) ..	96
Appendix D—Pure product classifications (Normative)	105
Appendix E—Gaseous mixture classification decision tree (Normative)	138
Appendix F—CGA 360 degree wrap around product guide for DOT-4L/TC-4LM and similar cylinders (Normative)	156
Appendix G—CGA-recommended hazard and precautionary phrases (Normative)	158

Appendices figures

Figure A-1—Basic markings	79
Figure A-2—Basic markings for multiple hazard diamonds (overlapped)	80
Figure A-3—Basic markings for multiple hazard diamonds (truncated)	81
Figure A-4—Examples of CGA marking system	82
Figure A-5—Examples of CGA marking system for U.S. domestic shipment of oxygen and ammonia as described in A.4	83
Figure B-1—Example of a small ownership sticker	85
Figure B-2—Example of a separate sticker containing supplementary information	85
Figure E-1—Classification for physical hazards (GHS Chapter 2.5: gases under pressure)	138
Figure E-2—Classification for physical hazards (GHS Chapters 2.2 and 2.4: mixture contains Flammable gases OR Oxidizing gases)	139
Figure E-3—Classification for physical hazards (GHS Chapters 2.2 and 2.4 cont.: mixture contains Flammable gases AND Oxidizing gases according to flamox rules in ISO 10156:2010 for international or ISO 10156:1996 for domestic)	140
Figure E-4—Classification for health hazards (GHS Chapter 3.1: acute toxicity)	141
Figure E-5—Classification for health hazards (GHS Chapter 3.2: skin corrosion/irritation)	142
Figure E-6—Classification for health hazards (GHS Chapter 3.3: serious eye damage/eye irritation)	143
Figure E-7—Classification for health hazards (GHS Chapter 3.4: respiratory or skin sensitization)	144
Figure E-8—Classification for health hazards (GHS Chapter 3.5: germ cell mutagenicity, GHS Chapter 3.6: carcinogenicity, GHS Chapter 3.7: reproductive toxicity)	145
Figure E-9—Classification for health hazards (GHS Chapter 3.8: specific target organ toxicity—single exposure, GHS Chapter 3.9: specific target organ toxicity—repeated exposure)	146
Figure E-10—Classification for environmental hazards (GHS Chapter 4.1: hazardous to the aquatic environment)—OPTIONAL	147
Figure E-11—Classification for environmental hazards (GHS Chapter 4.2: hazardous for the ozone layer) ..	148
Figure E-12—Classification for environmental hazards (EC Directive 842/2006: effects on global warming—Applicable only to shipments to Europe)	149
Figure E-13—Asphyxiant-AIR	150
Figure F-1—Example of industrial cryogenic identity decal	156

Alphabetical index of gas labels	160
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1 Introduction

The compressed gas industry has developed precautionary labels and markings for use on containers of compressed gases, cryogenic liquids, and other hazardous materials for the purpose of identifying the contents, warning of principal physical, health, and environmental hazards, and providing appropriate precautionary information following the *Globally Harmonized System of Classification and Labeling of Chemicals* (GHS) as allowed by the U.S. Occupational Safety and Health Administration (OSHA) [1].

GHS was established by the United Nations (UN) to develop a means of hazard classification and communication via labels, pictograms, and consistent hazard language on a global basis. Internationally, competent authorities may adopt the GHS in whole or in part and may also require additional information on labels.

2 Scope

The Compressed Gas Association (CGA) has prepared this publication to state the general principles for labels and markings and give recommended minimum requirements for many hazardous gases and selected liquids. Additional information may be shown by gas suppliers if desired.

The methods of preparing label information established by GHS as required by Title 29 of the U.S. *Code of Federal Regulations* (29 CFR) Part 1910.1200 (OSHA's Hazard Communication Standard) have been followed to meet the specific labeling and marking needs of the compressed gas industry [1, 2].¹ OSHA's Hazard Communication Standard and the currently referenced edition of GHS shall be used in conjunction with this publication when classifying products and creating labels [2, 1].

This publication is not intended to address state, provincial, territorial, or local regulatory label and marking requirements such as the "Proposition 65" warnings required by the state of California.

Labels shall be applied to compressed gas and cryogenic liquid containers to identify the container contents and to warn of principal physical and health hazards associated with the container and its contents. Containers in transportation not exceeding 454 kg (1000 lb) water capacity require the U.S. Department of Transportation (DOT) and Transport Canada (TC) hazard label.

Labels as given herein with regard to cylinder handling and storage information may be modified with respect to format so they can be applied as required to fixed storage vessels, portable tanks, tube trailers, cargo tanks, or other packaging.

Labels shown in this publication are examples of labels and markings that warn of principal physical and health hazards involved in the handling and use of these specific products. The words label or labeling as used in this publication include labels, markings, decals, tags, stenciling, and similar methods of presenting precautionary information.

Appendix A illustrates the basic marking consisting of DOT or TC proper shipping name; identification number; and 30-mm (1.25-in) diamond, which is permitted under conditions authorized by DOT and TC regulations as an alternative to the DOT/TC 100-mm (3.9-in) diamond label and marking [3, 4].

Appendices B and C, provide additional labeling and marking information to aid in complying with applicable regulations of the U.S. Food and Drug Administration (FDA) for the labeling of medical gases, including mixtures, that are classified as drugs and medical devices.

Appendix D includes the GHS classifications and corresponding hazard and precautionary phrases, signal word, and GHS pictograms for the pure gases listed in this publication. This appendix also contains DOT's transportation classifications and CGA-developed hazard and precautionary phrases.

Appendix E provides a decision tree to determine the classification of gaseous mixtures in accordance with OSHA's Hazard Communication Standard [2].

¹ References are shown by bracketed numbers and are listed in the order of appearance in the reference section.

3 Responsibility

It is the responsibility of the gas supplier to ensure that the labels adequately warn of physical, health, and environmental hazards, provide appropriate precautionary measures, and comply with applicable governmental regulations. These regulations include the requirements of DOT, U.S. Environmental Protection Agency (EPA), FDA, OSHA, and in Canada, TC and Health Products and Food Branch Inspectorate (HPFBI).

It is also the responsibility of the gas supplier to monitor all applicable state, provincial, territorial, and local regulations.

Those handling and using compressed gas containers have a responsibility to read and follow the recommendations from the precautionary information on labels, markings, and the safety data sheets (SDSs). It is also important that users obtain the knowledge and expertise to safely use the gas, container, and related apparatus.

The most important safety statement on any gas container label or marking is the name of the product in the container. Every user shall check the name of the product on the container label or marking before use to be sure that the product is suitable for the particular application. This product identification should bring to the user's mind the product's physical and health hazards and safety precautions. These precautions should be followed to handle and use the product safely.

The handler or user of compressed gas containers shall not rely on the color of the container to identify the product. The availability of more than one hundred gases and innumerable mixtures makes it impossible to develop a practical color marking system for industrial containers.

Compressed gas container labels and markings are not an instruction manual for operating equipment in conjunction with the container. Operating instructions for gas-use apparatus should be obtained by the user from the manufacturer or supplier of the equipment. These instructions should be read and understood before using the apparatus with a particular gas.

4 Definitions

The following terms are used in this publication. The definitions apply specifically to the use of these terms on labels for compressed gas containers.

4.1 Publication terminology

4.1.1 Shall

Indicates that the procedure is mandatory. Shall is used wherever the criterion for confirmation to specific recommendations allows no deviation.

4.1.2 Should

Indicates that a procedure is recommended.

4.1.3 May

Indicates that the procedure is optional.

NOTE— GHS uses the term "may" in its hazard and precautionary phrases to indicate a possibility or ability.

4.1.4 Will

Is used only to indicate the future, not a degree of requirement.

4.1.5 Can

Indicates a possibility or ability.

4.2 Technical definitions

4.2.1 Adequate ventilation

A condition falling within any or all of the following categories:

- Ventilation to reduce levels of the air contaminant below that which may cause personal injury or illness;
 NOTE—Values have been established by many sources for specific chemicals such as permissible exposure limits, threshold limit values, and short-term exposure limits.
- Ventilation sufficient to prevent accumulation to a concentration of contaminant vapor in air at a level in excess of 25% of the level set for the lower flammable limit; or
- Ventilation sufficient to prevent oxygen-deficient (less than 19.5%) or oxygen-enriched (greater than 23.5%) atmospheres.

4.2.2 Carcinogen (Cancer hazard or cancer suspect agent)

A chemical substance or mixture of chemical substances which induces cancer or increase its incidence.

4.2.3 Corrosive liquid or gas

A liquid or gas when in contact with living tissue causes full thickness destruction of the human skin within a specified period of time [3].

NOTE—In this publication, this term shall not refer to action on metal surfaces.

4.2.4 Critical temperature

The temperature above which a pure gas cannot be liquefied, regardless of the degree of compression.

4.2.5 Cryogenic liquid

A refrigerated liquefied gas having a boiling point colder than $-90\text{ }^{\circ}\text{C}$ ($-130\text{ }^{\circ}\text{F}$) at 101.3 kPa, abs (14.7 psia) [3].²

4.2.6 Flammable gas

A gas having a flammable range with air at $20\text{ }^{\circ}\text{C}$ and a standard pressure of 101.3 kPa and is classified in one of the two categories:

- Category 1—Gases, which at $20\text{ }^{\circ}\text{C}$ and a standard pressure of 101.3 kPa:
 - are ignitable when in a mixture of 13% or less by volume in air; or
 - have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit; or
- Category 2—Gases, other than those of Category 1, which, at $20\text{ }^{\circ}\text{C}$ and a standard pressure of 101.3 kPa, have a flammable range while mixed in air [2].

NOTE—Ammonia and methyl bromide may be regarded as special cases for some regulatory purposes.

4.2.7 Flammable liquid

A liquid having a flash point of not more than $93\text{ }^{\circ}\text{C}$ and is classified in one of four categories:

- Category 1—Flash point $< 23\text{ }^{\circ}\text{C}$ and initial boiling point $\leq 35\text{ }^{\circ}\text{C}$;
- Category 2—Flash point $< 23\text{ }^{\circ}\text{C}$ and initial boiling point $> 35\text{ }^{\circ}\text{C}$;
- Category 3—Flash point $\geq 23\text{ }^{\circ}\text{C}$ and $\leq 60\text{ }^{\circ}\text{C}$; or
- Category 4—Flash point $> 60\text{ }^{\circ}\text{C}$ and $\leq 93\text{ }^{\circ}\text{C}$ [2].

² kPa shall indicate gauge pressure unless otherwise noted as (kPa, abs) for absolute pressure or (kPa, differential) for differential pressure. All kPa values are rounded off per CGA P-11, *Metric Practice Guide for the Compressed Gas Industry* [5].

4.2.8 Flash point

The minimum temperature at which a substance gives off flammable vapors that when in contact with sparks or flame ignites when tested in accordance with Title 49 of the U.S. *Code of Federal Regulations* (49 CFR) Part 173.120(c) [3].

4.2.9 Gas

A normally formless fluid that occupies the space of enclosure and can be changed to the liquid or solid state by the effect of increased pressure, decreased temperature, or both. A gas diffuses.

4.2.9.1 Gases under pressure

Gases are classified, according to their physical state when packaged, in one of four groups:

4.2.9.2 Compressed gas (non-liquefied compressed gas)

A gas which when packaged under pressure is entirely gaseous at $-50\text{ }^{\circ}\text{C}$ ($-58\text{ }^{\circ}\text{F}$); including all gases with a critical temperature less than or equal to $-50\text{ }^{\circ}\text{C}$ ($-58\text{ }^{\circ}\text{F}$) [3].

4.2.9.3 Liquefied gas (liquefied compressed gas)

A gas when packaged under pressure, is partially liquid at temperatures above $-50\text{ }^{\circ}\text{C}$ ($-58\text{ }^{\circ}\text{F}$). A distinction is made between:

- High pressure liquefied gas: a gas with a critical temperature between $-50\text{ }^{\circ}\text{C}$ ($-58\text{ }^{\circ}\text{F}$) and $65\text{ }^{\circ}\text{C}$ ($149\text{ }^{\circ}\text{F}$) ; and
- Low pressure liquefied gas: a gas with a critical temperature above $65\text{ }^{\circ}\text{C}$ ($149\text{ }^{\circ}\text{F}$) [3].

4.2.9.4 Refrigerated liquefied gas

A gas when packaged is made partially liquid because of its low temperature.

4.2.9.5 Dissolved gas

A non-liquefied compressed gas which, when packaged under pressure, is dissolved in a liquid phase solvent.

4.2.10 High pressure gas

A liquefied or compressed gas in a container that has a pressure of 3450 kPa (500 psi) or higher at $21.1\text{ }^{\circ}\text{C}$ ($70\text{ }^{\circ}\text{F}$).

4.2.11 Irritation

The result of a chemical, either liquid or gas (not a corrosive chemical), that causes a reversible inflammatory effect on living tissue at the site of contact (such as eyes, skin, or respiratory tract).

4.2.12 Label

Printed and graphic material that contains hazard and precautionary phrases, pictograms, and other regulatory requirements applied to a compressed gas or liquid container.

NOTE—Illustrative examples are shown in Section 9 and Appendices A, B and C. DOT, TC, OSHA, and FDA define the term label and the required content differently within each of their specific regulations. See Section 5 and Appendix A for DOT/TC and OSHA requirements and Appendices B and C for FDA requirements.

4.2.13 Liquid

A substance or mixture which at $50\text{ }^{\circ}\text{C}$ ($122\text{ }^{\circ}\text{F}$) has a vapor pressure of not more than 300 kPa (44 psi), which is not completely gaseous at $20\text{ }^{\circ}\text{C}$ ($68\text{ }^{\circ}\text{F}$) and at a standard pressure of 101.3 kPa (14.7 psi), and which has a melting point or initial melting point of $20\text{ }^{\circ}\text{C}$ ($68\text{ }^{\circ}\text{F}$) or less at a standard pressure of 101.3 kPa (14.7 psi) [2].

4.2.14 Mixture

A mixture or a solution composed of two or more substances in which they do not react.

4.2.15 Oxidizing gas

Any gas that can, generally by providing oxygen, cause or contribute to the combustion of other material more than air does.

NOTE—Pure gases or mixtures with an oxidizing potential greater than 23.5 % oxygen in nitrogen by volume as defined in ISO 10156:2010 or an equivalent testing method are regarded as oxidizing for DOT, TC, and OSHA regulatory purposes [6].

4.2.16 Toxic

A gas or liquid that creates an immediate hazard to health by inhalation, ingestion, or skin absorption and can be fatal in low concentrations.

4.2.17 Pyrophoric gas

A gas that ignites spontaneously in air at or below a temperature of 54 °C (130 °F).

5 Label and marking description**5.1 U.S. Department of Transportation/Transport Canada**

DOT and TC labels and markings are color-coded, 100 mm (3.9 in), diamond-shaped labels and markings for labeling hazardous materials specified in DOT's *Hazardous Materials Regulations* found in 49 CFR and the *Transportation of Dangerous Goods Regulations* of TC [3, 4]. A reduction in the size of the diamond-shaped labels is permitted under conditions authorized by DOT and TC regulations, as detailed in Appendix A.

The appropriate hazard symbol shall be shown in the upper corner of the diamond(s). The appropriate hazard class number or division number shall be displayed in the lower corner of the diamond label for both primary and subsidiary hazard labels and markings. In the United States, text indicating the hazard such as flammable gas is not required on the diamond, except when the text "oxygen" is required as detailed in Appendix A, Figure A-5 [3]. In Canada, such text is not permitted on labels except for shipments originating from the United States under the reciprocity provisions of the TC regulations [4]. Wherever practical, the marking shall be located at the valve end of the container and off the cylindrical part of the body.

Compressed gas containers shall be legibly marked with the DOT or TC proper shipping name and the product identification number preceded by UN or NA. Marking shall be by means of stenciling, stamping, or labeling, and shall not be easily removable [3, 4].

Containers containing a hazardous substance that meet or exceed the reportable quantity as listed in Appendix A of the Hazardous Materials Table in 49 CFR 172.101 shall be marked with the letters RQ [3].

In the United States, containers of 2.3 toxic gases or ammonia shall be marked with the words INHALATION HAZARD. These markings shall appear in association with the proper shipping name [3]. The required label for materials classified as 2.3 toxic gases is shown in Figure 1. If the label or marking does not include the words INHALATION HAZARD, it shall be marked elsewhere on the package [3].

For air shipments of packages and overpacks containing cryogenic liquids, the cryogenic liquid handling labels and markings shall be used in addition to the nonflammable gas (Division 2.2) hazard label as shown in Figure 2 [7].

Vessel transportation of cylinders containing gases listed as marine pollutants in Appendix B of the Hazardous Materials Table in 49 CFR 172.101 shall be marked with the marine pollutant mark in association with the hazard warning label as in Figure 3 [3].

5.2 U.S. Occupational Safety and Health Administration

Applicable GHS pictograms, as illustrated in Figure 4, shall be affixed to indicate hazards in the workplace. The GHS pictogram shall be no less than 16 mm (0.63 in) on each side inclusive of the red border and oriented as a square-on-point (diamond). Where a pictogram (i.e., DOT label) required by 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].



Figure 1—Inhalation hazard label

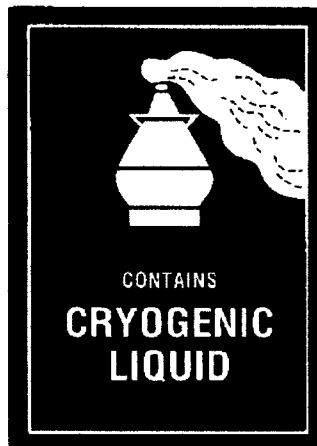


Figure 2—Cryogenic liquid label

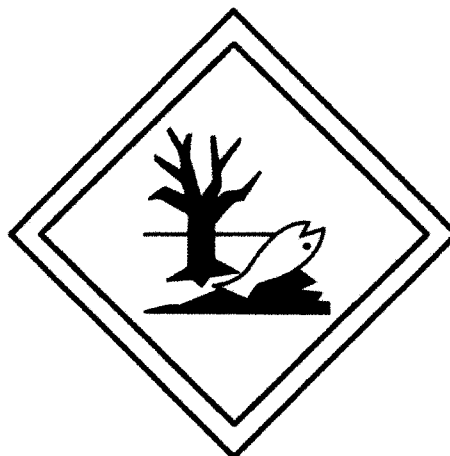


Figure 3—Marine pollutant mark

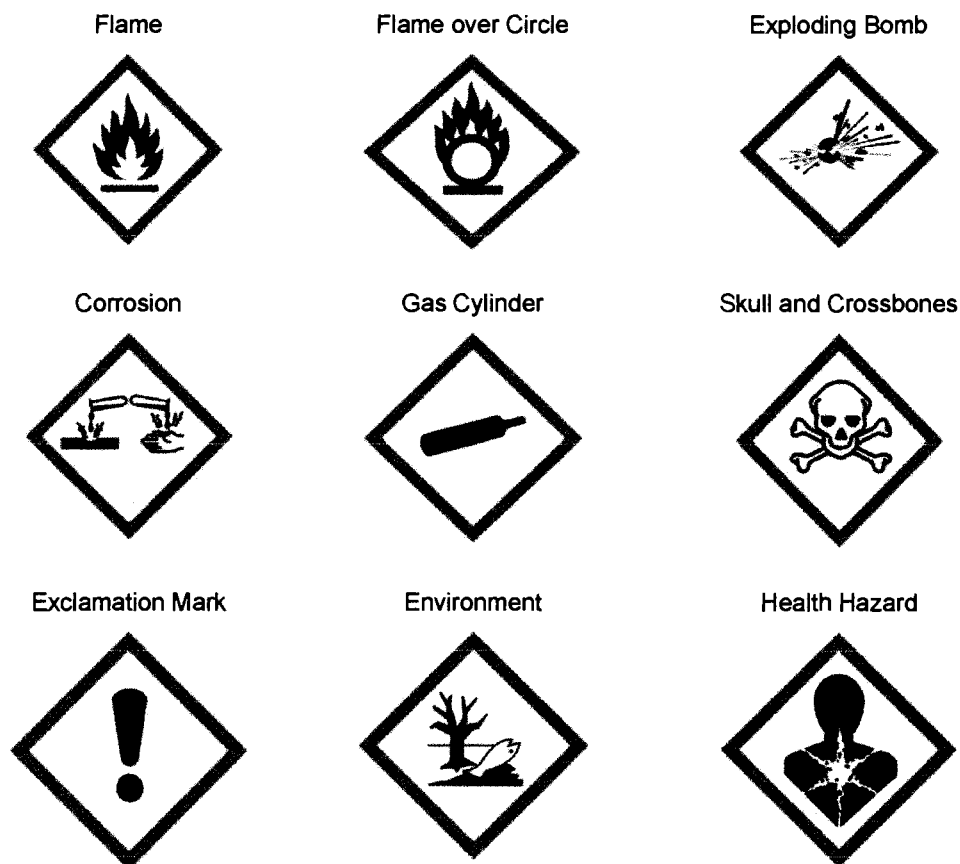


Figure 4—GHS pictograms

6 General principles

The following is a guide to the general principles in preparing labels for compressed gas containers. For effectiveness, all statements on labels should be brief, accurate, and expressed in simple, easily understood terms.

Precautionary information should be used only as appropriate. Excessive information should not be used. Unnecessary wording on labels could develop a disregard for the labels and markings. It is desirable to use uniform precautionary wording when indicating the same hazards for different gases.

Precautionary statements should be in legible type that is in contrast by typography or layout with other printed matter on the labels and markings. The label should be displayed in a conspicuous place on the container so it can easily be read by the handler or user.

Any additional information regarding hazards, precautionary information, response, and storage and disposal should appear in the appropriate section of a product's SDS. The information on the label shall be consistent with the SDS, and the label shall reference the product's SDS.

6.1 Gas mixtures

Gas mixtures can have properties that are similar to or that vary in kind or degree from those of the individual components. Labels for mixtures shall be based on the physical and health hazards of the finished mixture product if that product has been tested as a whole or, in the United States, based on the physical and health hazards of its ingredients in accordance with the criteria given in OSHA's Hazard Communication Standard [2].

For additional information, see Appendix E.

6.2 DOT-4L/TC-4LM liquid cylinders

All DOT-4L/TC-4LM liquid cylinders shall have additional product identification visible from all directions. Refer to Appendix F for additional instructions.

7 Specific requirements

7.1 Label content for hazard communication

Information required on labels as specified by OSHA's Hazard Communication Standard is as follows:

- product identifier;
- signal word;
- symbol(s)/pictogram(s);
- hazard statement(s);
- precautionary statements (prevention, response, storage, and disposal); and
- name, telephone number, and address of the manufacturer, importer, or other responsible party [2].

7.1.1 Product identifier

Product identifier can be the name used for a gas and/or the proper shipping name. It provides a unique means by which the user can identify the gas. The product identifier used shall permit cross references to be made among the list of gases required in the written hazard communication program, the label, and the SDS.

7.1.2 Signal word

The signal word shall indicate the relative degree of severity of a hazard in the diminishing order of DANGER or WARNING. When a product has more than one hazard, only the signal word corresponding to the class of the greatest immediate hazard shall be used. The assignment of signal words is based upon the hazard classification.

7.1.2.1 Danger

The signal word DANGER shall be used on labels and markings of flammable Category 1; toxic Category 1 through 3; corrosive Category 1; oxidizing; and similar gases where the release of gas to the atmosphere would create an immediate physical hazard or significant acute or chronic health hazard.

7.1.2.2 Warning

The signal word WARNING shall be used on labels and markings of flammable Category 2; toxic Category 4; corrosive Category 2 and Category 3; inert gases; and cryogenic liquids where a release of gas or liquid creates a less than immediate hazard but can be hazardous to health or property under certain conditions.

The use of the word "WARNING" for medical gases, as shown in Appendices B and C, should not be confused with the signal word required by OSHA's Hazard Communication Standard [2].

7.1.3 Hazard statement

A hazard statement (such as FLAMMABLE GAS) gives notice of the hazards present in connection with the customary or reasonably anticipated handling or use of the product and shall follow the signal word. If a product has several hazardous properties, a statement of each significant hazard shall be included. Examples of hazard statements and associated signal words are shown in Table 1.

Table 1—Hazard statements & associated signal words

Hazard statement	Associated signal word
Extremely flammable gas May form explosive mixtures with air Toxic if inhaled Corrosive gas and/or liquid May cause eye, skin, and respiratory burns May cause central nervous system damage May cause or intensify fire; oxidizer May cause cancer Catches fire spontaneously if exposed to air	DANGER
Flammable gas Contains gas under pressure; may explode if heated Harmful if inhaled May displace oxygen and cause rapid suffocation	WARNING

7.1.4 Precautionary statement

Precautionary statements (such as “Do not breathe gas”) are intended to supplement, the hazard statement(s) by briefly describing measures to be taken to avoid injury or damage from stated hazards. Normally, one or more precautionary measures accompany each hazard statement.

7.1.4.1 Response (first aid, emergency response, accidental spillage or exposure)

Instructions in case of contact and exposure shall be included where the results of contact or exposure are severe and immediate treatment is desirable, and where simple remedial measures may be taken safely before medical assistance is available. These instructions shall be limited to recognized procedures based on simple methods and commonly available materials. Simple remedial measures (such as washing or removing clothing) shall be included where they lessen injury following contact or exposure.

Additional instructions in case of fire or leak may be included on the labels or in safety literature referenced on the label. Such references on the label to safety literature could include SDSs, supplier’s safety booklets, or CGA publications.

7.1.4.2 Storage (handling and storage)

Important instructions for handling and storage (such as “Use and store only outdoors or in a well-ventilated place” and “Close valve after each use and when empty”) should be included on the label.

Additional instructions for container handling and storage may be included on the labels or in safety literature referenced on the label. Such references on the label to safety literature could include SDSs, supplier’s safety booklets, or CGA publications.

7.2 Label content for transport

See Appendix A for information on DOT/TC requirements.

7.3 Label content for medical applications

See Appendices B and C for additional FDA requirements.

7.4 Mixture classification

See Appendix E for information regarding the classification of mixtures.

8 Label groups

Gases and liquids in this publication are grouped according to the most commonly associated principal hazard. The illustrative label for each listed gas or liquid can be found in the section indicated in Table 2.

Table 2—Label groups by principal hazard

Asphyxiant gases	9.1
Argon	9.1.1
Argon, liquid; see Refrigerated liquefied gases	
Bromochlorodifluoromethane (R12B1)	9.1.3
Bromotrifluoromethane (R13B1)	9.1.3
Carbon Dioxide	9.1.4
Carbon Dioxide, liquid; see Refrigerated liquefied gases	
Chlorodifluoromethane (R22)	9.1.3
Chloroheptafluorocyclobutane (RC317)	9.1.2
Chloropentafluoroethane (R115)	9.1.3
Chloropentafluoroethane-Chlorodifluoromethane (R502)	9.1.3
1-Chloro-1,2,2,2-tetrafluoroethane (R124)	9.1.3
1-Chloro-2,2,2-trifluoroethane (R133a)	9.1.3
Chlorotrifluoromethane (R13)	9.1.3
1,2-Dibromotetrafluoroethane (R114B2)	9.1.2
1,2-Dichlorodifluoroethylene (R1112a)	9.1.2
Dichlorodifluoromethane (R12)	9.1.3
Dichlorofluoromethane (R21)	9.1.3
1,2-Dichlorohexafluorocyclobutane (RC316)	9.1.2
1,1-Dichlorotetrafluoroethane (R114a)	9.1.3
1,2-Dichlorotetrafluoroethane (R114)	9.1.3
Helium	9.1.1
Helium, liquid; see Refrigerated liquefied gases	
Heptafluoropropane (R227)	9.1.2
Hexafluoroethane (R116)	9.1.2
Hexafluoropropylene (R1216)	9.1.2
Krypton	9.1.1
Neon	9.1.1
Neon, liquid; see Refrigerated liquefied gases	
Nitrogen	9.1.1
Nitrogen, liquid; see Refrigerated liquefied gases	
Octafluorocyclobutane (RC318)	9.1.2
Octafluoropropane (R218) (perfluoropropane)	9.1.2
Pentachlorofluoroethane (R111)	9.1.3
Pentafluoroethane (R125)	9.1.2
Sulfur Hexafluoride	9.1.2
1,1,1,2-Tetrachloro-2,2-difluoroethane (R112a)	9.1.3
1,1,2,2-Tetrachloro-1,2-difluoroethane (R112)	9.1.3
1,1,1,2-Tetrafluoroethane (R134a)	9.1.2
1,1,2,2-Tetrafluoro-1-Chloroethane (R124a)	9.1.3
Tetrafluoromethane (R14) (Carbon tetrafluoride)	9.1.1
Trifluoromethane (R23) (Fluoroform)	9.1.5
Xenon	9.1.1

Flammable gases	9.2
Acetylene	9.2.7
Allene (Propadiene)	9.2.1
1,3-Butadiene	9.2.11
Butane	9.2.1
1-Butene	9.2.1
2-Butene	9.2.1
1-Chloro-1,1-Difluoroethane (R142b)	9.2.1
Cyclopropane	9.2.3
Deuterium	9.2.8
1,1-Difluoroethane (R152a)	9.2.1
Difluoromethane (R32)	9.2.6
Dimethyl Ether	9.2.5
2,2 Dimethylpropane (Neopentane)	9.2.13
Ethane	9.2.1
Ethyl Acetylene	9.2.1
Ethyl Chloride	9.2.14
Ethyl Methyl Ether	9.2.13
Ethylene	9.2.3
Hydrogen	9.2.8
Hydrogen, liquid; see Refrigerated liquefied gases	
Isobutane	9.2.1
Isobutylene	9.2.1
Liquefied Petroleum Gas (LPG)	9.2.1
Methane	9.2.9
Methyl Acetylene	9.2.1
Methyl Chloride	9.2.10
Methyl Fluoride	9.2.1
Methyl Vinyl Ether (Vinyl Methyl Ether)	9.2.2
Natural Gas	9.2.9
Propane	9.2.1
Propylene	9.2.1
1,1,1-Trifluoroethane (R143a)	9.2.1
Vinyl Bromide	9.2.11
Vinyl Chloride	9.2.12
Vinyl Fluoride	9.2.4
Flammable liquids	9.3
Hydrogen Cyanide	9.3.2
3-Methyl-1-Butene (Isopentene)	9.3.1
Pyrophoric materials	9.4
Dimethylzinc	9.4.3
Disilane	9.4.2
Silane	9.4.1
Oxidizing gases and air	9.5
Air, Compressed	9.5.4
Nitrogen Trifluoride	9.5.3
Nitrous Oxide	9.5.1
Nitrous Oxide, liquid; see Refrigerated liquefied gases	
Oxygen	9.5.2
Oxygen, liquid; see Refrigerated liquefied gases	

Refrigerated liquefied gases	9.6
Argon, Refrigerated Liquid	9.6.1
Carbon Dioxide, Refrigerated Liquid	9.6.2
Helium, Refrigerated liquid	9.6.3
Hydrogen, Refrigerated Liquid	9.6.4
Neon, Refrigerated Liquid	9.6.3
Nitrogen, Refrigerated Liquid	9.6.1
Nitrous Oxide, Refrigerated Liquid	9.6.6
Oxygen, Refrigerated Liquid	9.6.5
Toxic liquids and gases	9.7
Arsine	9.7.3
Carbon Monoxide	9.7.1
Carbonyl Sulfide	9.7.5
Cyanogen	9.7.4
Deuterium Selenide	9.7.4
Diborane	9.7.8
Ethylene Oxide	9.7.11
Germane	9.7.2
Hydrogen Selenide	9.7.4
Hydrogen Sulfide	9.7.6
Methyl Bromide	9.7.9
Methyl Mercaptan	9.7.10
Phosphine	9.7.7
Trifluorochloroethylene (R1113)	9.7.12
Toxic and corrosive liquids and gases	9.8
Boron Trichloride	9.8.1
Boron Trifluoride	9.8.3
Chlorine	9.8.4
Deuterium Chloride	9.8.1
Dichlorosilane	9.8.5
Hydrogen Bromide	9.8.1
Hydrogen Chloride	9.8.1
Hydrogen Fluoride	9.8.6
Hydrogen Iodide	9.8.1
Phosgene	9.8.7
Silicon Tetrafluoride	9.8.2
Sulfur Dioxide	9.8.1
Tungsten Hexafluoride	9.8.8
Toxic, oxidizing, and corrosive gases	9.9
Chlorine Trifluoride	9.9.1
Fluorine	9.9.2
Nitric Oxide	9.9.3
Nitrogen Dioxide (Dinitrogen Tetroxide)	9.9.4
Corrosive liquids and gases	9.10
Anhydrous Ammonia	9.10.1
Dimethylamine	9.10.3
Monoethylamine	9.10.3
Monomethylamine	9.10.3
Trichlorosilane	9.10.2
Trimethylamine	9.10.3

9 Illustrative labels

The following are examples of labels for compressed gas and cryogenic liquid containers prepared in accordance with the general principles given in this publication and showing minimum requirements.

These illustrative labels might not contain all language necessary to comply with government regulations such as those of DOT, EPA, FDA, HPFBI, OSHA, TC, and other applicable state, provincial, territorial, and local agencies. It is the responsibility of the gas supplier to ensure that the label contains any additional information necessary to comply with applicable government regulations.

These illustrative labels show minimum warnings based upon sources, technical information, and experience at the time this edition was published. They are subject to periodic review and might change as new information becomes available.

A code designation (e.g., H280) has been included on the illustrative labels for each hazard and precautionary phrase for reference purposes only. This coding designates the source and specific text of the phrase but is not part of the statement and shall not appear on the label. Codes OSHA-H01 and OSHA-PG01 or codes in the format H#### or P#### are GHS/OSHA-developed phrases. CGA has developed additional hazard and precautionary phrases, indicated by codes that start with "CGA," to convey further information. These additional CGA hazard and precautionary phrases are listed in Appendix G.

Unless an asterisk notes an exception, the OSHA and CGA phrases shown on the illustrative labels are required.

Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].

9.1 Asphyxiant gases

9.1.1	Argon Helium Krypton Neon	Nitrogen Tetrafluoromethane (R14) Xenon
NOTE—The number in parentheses is a refrigerant designation that is shown here for reference only and is not required on the label.		
WARNING:	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. Do not handle until all safety precautions have been read and understood. Use and store only outdoors or in a well-ventilated place. Use a back flow preventive device in the piping. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.	Codes H280 OSHA-H01 P202 P271+P403 CGA-PG05 CGA-PG10 CGA-PG06 CGA-PG02 CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.	P304, P340, P313
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols	
GHS pictogram(s)	Gas Cylinder
Transportation label(s)	2.2 Nonflammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.1.2	<p>Chloroheptafluorocyclobutane (RC317) 1,2-Dibromotetrafluoroethane (R114B2) 1,2-Dichlorodifluoroethylene (R1112a) 1,2-Dichlorohexafluorocyclobutane (RC316) Heptafluoropropane (R227) Hexafluoroethane (R116)</p>	<p>Hexafluoropropylene (R1216) Octafluorocyclobutane (RC318) Octafluoropropane (R218) Pentafluoroethane (R125) Sulfur Hexafluoride 1,1,1,2-Tetrafluoroethane (R134a)</p>
<p>NOTE—The numbers in parentheses are refrigerant designations that are shown here for reference only and are not required on the label.</p>		
WARNING:	<p>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. *HARMFUL IF INHALED. *MAY CAUSE RESPIRATORY IRRITATION. *MAY CAUSE DAMAGE TO LIVER AND KIDNEY. *MAY CAUSE KIDNEY DAMAGE THROUGH PROLONGED OR REPEATED EXPOSURE. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY CAUSE FROSTBITE.</p> <p>Do not handle until all safety precautions have been read and understood. *Avoid breathing gas. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. *Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Use a back flow preventive device in the piping. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H280 H332 H335 H370 H373 OSHA-H01 CGA-HG01 P202 P261 P262 P271+P403 P280+P284 CGA-PG05 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.</p> <p>** IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.</p> <p>IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P313 P304, P340, P312 P302, P336, P315 OSHA-PG01</p>

**** The first aid phrases P304, P340, P312 shall be used in place of P304, P340, P313 on the label for Hexafluoropropylene (R1216).**

Required symbols	
GHS pictogram(s)	Gas Cylinder, *Health Hazard, *Exclamation Mark
Transportation label(s)	2.2 Nonflammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.1.3	Bromochlorodifluoromethane (R12B1) Bromotrifluoromethane (R13B1) Chlorodifluoromethane (R22) Chloropentafluoroethane (R115) Chloropentafluoroethane- Chlorodifluoromethane (R502) 1-Chloro-1,2,2,2-tetrafluoroethane (R124) 1-Chloro-2,2,2-trifluoroethane (R133a) Chlorotrifluoromethane (R13)	Dichlorodifluoromethane (R12) Dichlorofluoromethane (R21) 1,1-Dichlorotetrafluoroethane (R114a) 1,2-Dichlorotetrafluoroethane (R114) Pentachlorofluoroethane (R111) 1,1,1,2-Tetrachloro-2,2-difluoroethane (R112a) 1,1,2,2-Tetrachloro-1,2-difluoroethane (R112) 1,1,2,2-Tetrafluoro-1-Chloroethane (R124a)
NOTE—The numbers in parentheses are refrigerant designations that are shown here for reference only and are not required on the label.		
WARNING: CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. HARMS PUBLIC HEALTH AND THE ENVIRONMENT BY DESTROYING OZONE IN THE UPPER ATMOSPHERE. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY CAUSE FROSTBITE. Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. Use a back flow preventive device in the piping. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.		Codes H280 H420 OSHA-H01 CGA-HG01 P202 P262 P271+P403 CGA-PG05 CGA-PG06 CGA-PG02 CGA-PG27 P304, P340, P313 P302, P336, P315 OSHA-PG01
FIRST AID: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention. IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.		
DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).		

NOTE—These products because of ozone depleting properties shall be labeled as follows: Warning: Contains (compound name), a substance which harms the public health and environment by destroying ozone in the upper atmosphere.

Required symbols	
GHS pictogram(s)	Gas Cylinder, Exclamation Mark
Transportation label(s)	2.2 Nonflammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.1.4 Carbon Dioxide		
WARNING:	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY CAUSE FROSTBITE. MAY INCREASE RESPIRATION AND HEART RATE.	Codes H280 OSHA-H01 CGA-HG01 CGA-HG03
	Do not handle until all safety precautions have been read and understood.	P202
	Avoid breathing gas.	P261
	Do not get in eyes, on skin, or on clothing.	P262
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	Use a back flow preventive device in the piping.	CGA-PG05
	Use only with equipment rated for cylinder pressure.	CGA-PG10
	Close valve after each use and when empty.	CGA-PG06
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG02
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.	P304, P340, P313
	IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.	P302, P336, P315
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols	
GHS pictogram(s)	Gas Cylinder
Transportation label(s)	2.2 Nonflammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.1.5 Trifluoromethane (R23)

NOTE—The number in parentheses is a refrigerant designation that is shown here for reference only and is not required on the label.

WARNING:	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY CAUSE FROSTBITE.	Codes H280 OSHA-H01 CGA-HG01
	Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. Use a back flow preventive device in the piping. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.	P202 P262 P271+P403 CGA-PG05 CGA-PG10 CGA-PG06 CGA-PG02 CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.	P304, P340, P313
	IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.	P302, P336, P315
DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).		OSHA-PG01

Required symbols

GHS pictogram(s)	Gas Cylinder
Transportation label(s)	2.2 Nonflammable Gas

NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].

9.2 Flammable gases

9.2.1	Allene Butane 1-Butene 2-Butene *1-Chloro-1,1-Difluoroethane (R142b) 1,1-Difluoroethane (R152a) Ethane Ethyl Acetylene	Isobutane Isobutylene Liquefied Petroleum Gas Methyl Acetylene Methyl Fluoride Propane Propylene 1,1,1-Trifluoroethane (R143a)
NOTE—The numbers in parentheses are refrigerant designations that are shown here for reference only and are not required on the label.		
DANGER:	<p>EXTREMELY FLAMMABLE GAS.</p> <p>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.</p> <p>*HARMS PUBLIC HEALTH AND THE ENVIRONMENT BY DESTROYING OZONE IN THE UPPER ATMOSPHERE.</p> <p>MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.</p> <p>MAY FORM EXPLOSIVE MIXTURES WITH AIR.</p> <p>MAY CAUSE FROSTBITE.</p> <p>Do not handle until all safety precautions have been read and understood.</p> <p>Keep away from heat, open flames, sparks, hot surfaces. — No smoking.</p> <p>Use and store only outdoors or in a well-ventilated place.</p> <p>Leaking gas fire: Do not extinguish, unless leak can be stopped safely.</p> <p>Eliminate all ignition sources if safe to do so.</p> <p>Use a back flow preventive device in the piping.</p> <p>Do not open valve until connected to equipment prepared for use.</p> <p>Close valve after each use and when empty.</p> <p>Never put cylinders into unventilated areas of passenger vehicles.</p> <p>Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).</p> <p>Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes</p> <p>H220</p> <p>H280</p> <p>H420</p> <p>OSHA-H01</p> <p>CGA-HG04</p> <p>CGA-HG01</p> <p>P202</p> <p>P210</p> <p>P271+P403</p> <p>P377</p> <p>P381</p> <p>CGA-PG05</p> <p>CGA-PG12</p> <p>CGA-PG06</p> <p>CGA-PG11</p> <p>CGA-PG02</p> <p>CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.</p> <p>IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P313</p> <p>P302, P336, P315</p> <p>OSHA-PG01</p>

- * 1-Chloro-1,1-Difluoroethane (R142b), because of ozone depleting properties, shall be labeled as follows: Warning: Contains 1-Chloro-1,1-Difluoroethane (R142b), a substance which harms the public health and environment by destroying ozone in the upper atmosphere. This hazard phrase and the Exclamation Mark pictogram shall also appear on the label for 1-Chloro-1,1-Difluoroethane (R142b).

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder, *Exclamation Mark
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.2.2 Methyl Vinyl Ether		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY FORM EXPLOSIVE MIXTURES WITH AIR. MAY CAUSE FROSTBITE.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Use and store only outdoors or in a well-ventilated place. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Use a back flow preventive device in the piping. Do not open valve until connected to equipment prepared for use. Close valve after each use and when empty. Never put cylinders into unventilated areas of passenger vehicles. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H280 OSHA-H01 CGA-HG04 CGA-HG01</p> <p>P202 P210 P271+P403 P377 P381 CGA-PG05 CGA-PG12 CGA-PG06 CGA-PG11 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.</p> <p>IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P313</p> <p>P302, P336, P315</p> <p>OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder, Exclamation Mark
Transportation label(s)	2.1 Flammable Gas
<p>NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].</p>	

9.2.3 Cyclopropane Ethylene		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY CAUSE DROWSINESS OR DIZZINESS. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY FORM EXPLOSIVE MIXTURES WITH AIR. MAY CAUSE FROSTBITE.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Avoid breathing gas. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Use a back flow preventive device in the piping. Do not open valve until connected to equipment prepared for use. Close valve after each use and when empty. Never put cylinders into unventilated areas of passenger vehicles. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H280 H336 OSHA-H01 CGA-HG04 CGA-HG01</p> <p>P202 P210 P261 P262 P271+P403 P377 P381 CGA-PG05 CGA-PG12 CGA-PG06 CGA-PG11 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call POISON CENTER or doctor/physician if you feel unwell.</p> <p>IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P312</p> <p>P302, P336, P315</p> <p>P305, P351, P338</p> <p>OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Exclamation Mark, Flame, Gas Cylinder
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.2.4 Vinyl Fluoride		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY CAUSE DROWSINESS OR DIZZINESS. SUSPECTED OF CAUSING GENETIC DEFECTS. MAY CAUSE CANCER. MAY CAUSE DAMAGE TO LIVER THROUGH PROLONGED OR REPEATED EXPOSURE. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY FORM EXPLOSIVE MIXTURES WITH AIR. MAY CAUSE FROSTBITE.</p> <p>Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Do not breathe gas. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Use a back flow preventive device in the piping. Do not open valve until connected to equipment prepared for use. Close valve after each use and when empty. Never put cylinders into unventilated areas of passenger vehicles. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H280 H336 H341 H350 H373 OSHA-H01 CGA-HG04 CGA-HG01 P201 P202 P210 P260 P262 P271+P403 P280+P284 P377 P381 CGA-PG05 CGA-PG12 CGA-PG06 CGA-PG11 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call POISON CENTER or doctor/physician if you feel unwell.</p> <p>IF EXPOSED OR CONCERNED: Get medical advice/attention.</p> <p>IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P312 P308, P313 P302, P336, P315 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder, Health Hazard, Exclamation Mark
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.2.5 Dimethyl Ether		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY CAUSE DROWSINESS OR DIZZINESS. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY FORM EXPLOSIVE MIXTURES WITH AIR. MAY CAUSE FROSTBITE.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Avoid breathing gas. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Use a back flow preventive device in the piping. Close valve after each use and when empty. Never put cylinders into unventilated areas of passenger vehicles. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H280 H336 OSHA-H01 CGA-HG04 CGA-HG01</p> <p>P202 P210 P261 P262 P264 P271+P403 P280</p> <p>P377 P381 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call POISON CENTER or doctor/physician if you feel unwell.</p> <p>IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.</p>	<p>P304, P340, P312</p> <p>P302, P336, P315</p>
DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).		OSHA-PG01

Required symbols	
GHS pictogram(s)	Exclamation Mark, Flame, Gas Cylinder
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.2.6 Difluoromethane (R32)

NOTE—The number in parentheses is a refrigerant designation that is shown here for reference only and is not required on the label.

DANGER:	EXTREMELY FLAMMABLE GAS.	Codes
	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.	H220
	MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.	H280
	MAY FORM EXPLOSIVE MIXTURES WITH AIR.	OSHA-H01
	MAY CAUSE FROSTBITE.	CGA-HG04
		CGA-HG01
	Do not handle until all safety precautions have been read and understood.	P202
	Keep away from heat, open flames, sparks, hot surfaces. – No smoking.	P210
	Do not get in eyes, on skin, or on clothing.	P262
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.	P377
	Eliminate all ignition sources if safe to do so.	P381
	Use a back flow preventive device in the piping.	CGA-PG05
	Close valve after each use and when empty.	CGA-PG06
	Never put cylinders into unventilated areas of passenger vehicles.	CGA-PG11
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG02
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.	P304, P340, P313
	IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.	P302, P336, P315
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols

GHS pictogram(s)	Flame, Gas Cylinder
Transportation label(s)	2.1 Flammable Gas

NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].

9.2.7 Acetylene	
DANGER:	<p>EXTREMELY FLAMMABLE GAS. MAY REACT EXPLOSIVELY EVEN IN THE ABSENCE OF AIR AT ELEVATED PRESSURES AND/OR TEMPERATURE. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY FORM EXPLOSIVE MIXTURES WITH AIR.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Use and store only outdoors or in a well-ventilated place. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Fusible plugs in top, bottom, or valve melt at 98 °C to 107 °C (208 °F to 224 °F). Do not discharge at pressures above 15 psi (103 kPa). Close valve after each use and when empty. Never put cylinders into unventilated areas of passenger vehicles. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p> <p>FIRST AID: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>
	<p>Codes H220 H231 H280 OSHA-H01 CGA-HG04 P202 P210 P271+P403 P377 P381 P501 CGA-PG05 CGA-PG13 CGA-PG06 CGA-PG11 CGA-PG02 CGA-PG27 P304, P340, P313 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.2.8 Deuterium Hydrogen	
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY FORM EXPLOSIVE MIXTURES WITH AIR. BURNS WITH INVISIBLE FLAME.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Use and store only outdoors or in a well-ventilated place. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Use a back flow preventive device in the piping. Use only with equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p> <p>FIRST AID: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>
	<p>Codes H220 H280 OSHA-H01 CGA-HG04 CGA-HG08</p> <p>P202 P210 P271+P403 P377 P381 CGA-PG05 CGA-PG10 CGA-PG12 CGA-PG06 CGA-PG02 CGA-PG27</p> <p>P304, P340, P313</p> <p>OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.2.9 Methane Natural Gas		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY FORM EXPLOSIVE MIXTURES WITH AIR.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Use and store only outdoors or in a well-ventilated place. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Use a back flow preventive device in the piping. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty. Never put cylinders into unventilated areas of passenger vehicles. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H280 OSHA-H01 CGA-HG04</p>
		<p>P202 P210 P271+P403 P377 P381 CGA-PG05 CGA-PG10 CGA-PG06 CGA-PG11 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.</p>	<p>P304, P340, P313</p>
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.2.10 Methyl Chloride		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. HARMFUL IF INHALED. SUSPECTED OF CAUSING CANCER. MAY CAUSE LUNG, KIDNEY, LIVER, AND CENTRAL NERVOUS SYSTEM DAMAGE THROUGH PROLONGED OR REPEATED EXPOSURE. MAY FORM EXPLOSIVE MIXTURES WITH AIR. MAY CAUSE FROSTBITE.</p> <p>Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Do not breathe gas. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store locked up. Dispose of contents/container in accordance with container/supplier owner instructions. Use a back flow preventive device in the piping. Do not open valve until connected to equipment prepared for use. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H280 H332 H351 H373 CGA-HG04 CGA-HG01 P201 P202 P210 P260 P262 P271+P403 P280+P284 P377 P381 P405 P501 CGA-PG05 CGA-PG12 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF EXPOSED OR CONCERNED: Get medical advice/attention.</p> <p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P308, P313 P304, P340, P312 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder, Health Hazard
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.2.11	1,3-Butadiene Vinyl Bromide																																																								
DANGER:	<table border="0"> <tr> <td>EXTREMELY FLAMMABLE GAS.</td><td>Codes</td></tr> <tr> <td>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.</td><td>H220</td></tr> <tr> <td>*MAY CAUSE GENETIC DEFECTS.</td><td>H280</td></tr> <tr> <td>MAY CAUSE CANCER.</td><td>H340</td></tr> <tr> <td>MAY FORM EXPLOSIVE MIXTURES WITH AIR.</td><td>H350</td></tr> <tr> <td>MAY CAUSE FROSTBITE.</td><td>CGA-HG04</td></tr> <tr> <td></td><td>CGA-HG01</td></tr> <tr> <td>Obtain special instructions before use.</td><td>P201</td></tr> <tr> <td>Do not handle until all safety precautions have been read and understood.</td><td>P202</td></tr> <tr> <td>Keep away from heat, open flames, sparks, hot surfaces. – No smoking.</td><td>P210</td></tr> <tr> <td>Avoid breathing gas.</td><td>P261</td></tr> <tr> <td>Do not get in eyes, on skin, or on clothing.</td><td>P262</td></tr> <tr> <td>Use and store only outdoors or in a well-ventilated place.</td><td>P271+P403</td></tr> <tr> <td>Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection.</td><td>P280+P284</td></tr> <tr> <td>Leaking gas fire: Do not extinguish, unless leak can be stopped safely.</td><td>P377</td></tr> <tr> <td>Eliminate all ignition sources if safe to do so.</td><td>P381</td></tr> <tr> <td>Store locked up.</td><td>P405</td></tr> <tr> <td>Dispose of contents/container in accordance with container supplier/owner instructions.</td><td>P501</td></tr> <tr> <td>Use a back flow preventive device in the piping.</td><td>CGA-PG05</td></tr> <tr> <td>Do not open valve until connected to equipment prepared for use.</td><td>CGA-PG12</td></tr> <tr> <td>Close valve after each use and when empty.</td><td>CGA-PG06</td></tr> <tr> <td>Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).</td><td>CGA-PG02</td></tr> <tr> <td>Read and follow the Safety Data Sheet (SDS) before use.</td><td>CGA-PG27</td></tr> <tr> <td>FIRST AID:</td><td></td></tr> <tr> <td>IF EXPOSED OR CONCERNED: Get medical advice/attention.</td><td>P308, P313</td></tr> <tr> <td>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.</td><td>P305, P351, P338, P313</td></tr> <tr> <td>IF ON SKIN: Remove/take off immediately all contaminated clothing. Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.</td><td>P302, P361, P336, P315</td></tr> <tr> <td>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</td><td>OSHA-PG01</td></tr> </table>	EXTREMELY FLAMMABLE GAS.	Codes	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.	H220	*MAY CAUSE GENETIC DEFECTS.	H280	MAY CAUSE CANCER.	H340	MAY FORM EXPLOSIVE MIXTURES WITH AIR.	H350	MAY CAUSE FROSTBITE.	CGA-HG04		CGA-HG01	Obtain special instructions before use.	P201	Do not handle until all safety precautions have been read and understood.	P202	Keep away from heat, open flames, sparks, hot surfaces. – No smoking.	P210	Avoid breathing gas.	P261	Do not get in eyes, on skin, or on clothing.	P262	Use and store only outdoors or in a well-ventilated place.	P271+P403	Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection.	P280+P284	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.	P377	Eliminate all ignition sources if safe to do so.	P381	Store locked up.	P405	Dispose of contents/container in accordance with container supplier/owner instructions.	P501	Use a back flow preventive device in the piping.	CGA-PG05	Do not open valve until connected to equipment prepared for use.	CGA-PG12	Close valve after each use and when empty.	CGA-PG06	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG02	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27	FIRST AID:		IF EXPOSED OR CONCERNED: Get medical advice/attention.	P308, P313	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.	P305, P351, P338, P313	IF ON SKIN: Remove/take off immediately all contaminated clothing. Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.	P302, P361, P336, P315	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01
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DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01																																																								

* This hazard phrase shall appear on the label for 1,3-Butadiene.

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder, Health Hazard
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.2.12 Vinyl Chloride	
DANGER:	<p>EXTREMELY FLAMMABLE GAS. H220</p> <p>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. H280</p> <p>MAY CAUSE CANCER. H350</p> <p>MAY CAUSE KIDNEY DAMAGE THROUGH PROLONGED OR REPEATED EXPOSURE. H373</p> <p>MAY FORM EXPLOSIVE MIXTURES WITH AIR. CGA-HG04</p> <p>MAY CAUSE FROSTBITE. CGA-HG01</p> <p>Obtain special instructions before use. P201</p> <p>Do not handle until all safety precautions have been read and understood. P202</p> <p>Keep away from heat, open flames, sparks, hot surfaces. – No smoking. P210</p> <p>Do not breathe gas. P260</p> <p>Do not get in eyes, on skin, or on clothing. P262</p> <p>Use and store only outdoors or in a well-ventilated place. P271+P403</p> <p>Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. P280+P284</p> <p>Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P377</p> <p>Eliminate all ignition sources if safe to do so. P381</p> <p>Store locked up. P405</p> <p>Dispose of contents/container in accordance with container supplier/owner instructions. P501</p> <p>Use a back flow preventive device in the piping. CGA-PG05</p> <p>Do not open valve until connected to equipment prepared for use. CGA-PG12</p> <p>Close valve after each use and when empty. CGA-PG06</p> <p>Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). CGA-PG02</p> <p>Read and follow the Safety Data Sheet (SDS) before use. CGA-PG27</p>
FIRST AID:	<p>IF EXPOSED OR CONCERNED: Get medical advice/attention. P308, P313</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention. P305, P351, P338, P315</p> <p>IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention. P302, P336, P315</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording). OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder, Health Hazard
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.2.13 2,2-Dimethylpropane Ethyl Methyl Ether		
DANGER:	EXTREMELY FLAMMABLE GAS.	Codes H220
	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.	H280
	*TOXIC TO AQUATIC LIFE WITH LONG-LASTING EFFECTS.	H411
	MAY FORM EXPLOSIVE MIXTURES WITH AIR.	CGA-HG04
	Do not handle until all safety precautions have been read and understood.	P202
	Keep away from heat, open flames, sparks, hot surfaces. – No smoking.	P210
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	*Avoid release to the environment.	P273
	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.	P377
	Eliminate all ignition sources if safe to do so.	P381
	*Collect spillage.	P391
	Use a back flow preventive device in the piping.	CGA-PG05
	Close valve after each use and when empty.	CGA-PG06
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG02
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.	P304, P340, P313
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

* These hazard and precautionary phrases and the Environment pictogram may be required to appear on the label for 2,2-Dimethylpropane only when shipped internationally.

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder, *Environment (may be required if shipped internationally)
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.2.14 Ethyl Chloride	
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. SUSPECTED OF CAUSING CANCER. *HARMFUL TO AQUATIC LIFE WITH LONG-LASTING EFFECTS. MAY FORM EXPLOSIVE MIXTURES WITH AIR.</p> <p>Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Avoid breathing gas. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Use and store only outdoors or in a well-ventilated place. *Avoid release to the environment. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store locked up. Use a back flow preventive device in the piping. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p> <p>FIRST AID: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention. IF EXPOSED OR CONCERNED: Get medical advice/attention. DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>
	<p>Codes H220 H280 H351 H412 CGA-HG04 P201 P202 P210 P261 P262 P264 P270 P271+P403 P273 P280+P284 P377 P381 P405 CGA-PG05 CGA-PG06 CGA-PG02 CGA-PG27 P304, P340, P313 P308, P313 OSHA-PG01</p>

* Hazard and precautionary phrases may be required for international shipping.

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder, Health Hazard
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.3 Flammable liquids

9.3.1 3-Methyl-1-Butene		Codes
DANGER:	EXTREMELY FLAMMABLE LIQUID AND VAPOR.	H224
	MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.	H304
	CAUSES SKIN AND SERIOUS EYE IRRITATION.	H315+H319
	MAY CAUSE DROWSINESS OR DIZZINESS.	H336
	MAY FORM EXPLOSIVE MIXTURES WITH AIR.	CGA-HG04
	Do not handle until all safety precautions have been read and understood.	P202
	Keep away from heat, open flames, sparks, hot surfaces. – No smoking.	P210
	Ground/bond container and receiving equipment.	P240
	Use explosion-proof electrical, ventilating, and lighting equipment.	P241
	Use only non-sparking tools.	P242
	Take precautionary measures against static discharge.	P243
	Avoid breathing vapor.	P261
	Do not get in eyes, on skin, or on clothing.	P262
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	Wear protective gloves, protective clothing, eye protection, and/or face protection.	P280
	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.	P377
	Eliminate all ignition sources if safe to do so.	P381
	Use a back flow preventive device in the piping.	CGA-PG05
	Close valve after each use and when empty.	CGA-PG06
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG02
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call POISON CENTER or doctor/physician if you feel unwell.	P304, P340, P312
	IF SWALLOWED: Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.	P301, P331, P310
	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.	P305, P351, P338, P313
	IF EYE IRRITATION PERSISTS: Get medical advice/attention.	P337, P313
	IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. Get medical advice/attention.	P302, P352, P362+P364, P313
	IF SKIN IRRITATION OCCURS: Get medical advice/attention.	P332, P313
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols	
GHS pictogram(s)	Flame, Exclamation Mark, Health Hazard
Transportation label(s)	3 Flammable Liquid
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.3.2 Hydrogen Cyanide	
DANGER:	<p>EXTREMELY FLAMMABLE LIQUID AND VAPOR. CAUSES IRRITATION TO EYES, SKIN, AND RESPIRATORY TRACT. FATAL IF INHALED. MAY FORM EXPLOSIVE MIXTURES WITH AIR. SYMPTOMS MAY BE DELAYED.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Do not breathe vapor. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>
	<p>Codes H224 H320+H315+ H335 H330 CGA-HG04 CGA-HG11 P202 P210 P260 P262 P271+P403 P280+P284 P377 P381 P405 P501 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG18 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF SWALLOWED: Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.</p> <p>IF EYE IRRITATION PERSISTS: Get medical advice/attention.</p> <p>IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. Get medical advice/attention.</p> <p>IF SKIN IRRITATION OCCURS: Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>
	<p>P304, P340, P310 P301, P331, P310 P305, P351, P338, P313 P337, P313 P302, P352, P362+P364, P313 P332, P313 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Exclamation Mark
Transportation label(s)	6.1 Poison Inhalation Hazard, 3 Flammable Liquid
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.4 Pyrophoric materials

9.4.1 Silane		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CATCHES FIRE SPONTANEOUSLY IF EXPOSED TO AIR. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. HARMFUL IF INHALED.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Do not allow contact with air. Avoid breathing gas. Use and store only outdoors or in a well-ventilated place. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Use a back flow preventive device in the piping. Close valve after each use and when empty. Use only with equipment rated for cylinder pressure. Use only with equipment purged with inert gas or evacuated prior to discharge from cylinder. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H250 H280 H332 P202 P210 P222 P261 P271+P403 P377 P381 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG17 CGA-PG12 CGA-PG18 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.</p>	<p>P304, P340, P312</p>
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder, Exclamation Mark
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.4.2 Disilane		
DANGER:	EXTREMELY FLAMMABLE GAS.	Codes H220
	CATCHES FIRE SPONTANEOUSLY IF EXPOSED TO AIR.	H250
	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.	H280
	Do not handle until all safety precautions have been read and understood.	P202
	Keep away from heat, open flames, sparks, hot surfaces. – No smoking.	P210
	Do not allow contact with air.	P222
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.	P377
	Eliminate all ignition sources if safe to do so.	P381
	Use a backflow preventative device in the piping.	CGA-PG05
	Close valve after each use and when empty.	CGA-PG06
	Use only with equipment rated for cylinder pressure.	CGA-PG10
	Use only with equipment purged with inert gas or evacuated prior to discharge from cylinder.	CGA-PG17
	When returning cylinder, install leak tight valve outlet cap or plug.	CGA-PG18
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG02
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing.	P304, P340
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.4.3 Dimethylzinc	
DANGER:	<p>CATCHES FIRE SPONTANEOUSLY IF EXPOSED TO AIR. H250</p> <p>IN CONTACT WITH WATER RELEASES FLAMMABLE GASES WHICH MAY IGNITE SPONTANEOUSLY. H260</p> <p>CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. H314</p> <p>VERY TOXIC TO AQUATIC LIFE. H400</p> <p>VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS. H410</p> <p>Do not handle until all safety precautions have been read and understood. P202</p> <p>Keep away from heat, open flames, sparks, hot surfaces. – No smoking. P210</p> <p>Do not allow contact with air. P222</p> <p>Ground/bond container and receiving equipment. P240</p> <p>Use explosion-proof electrical, ventilating, and lighting equipment. P241</p> <p>Use only non-sparking tools. P242</p> <p>Take precautionary measures against static discharge. P243</p> <p>Do not breathe vapor. P260</p> <p>Use and store only outdoors or in a well-ventilated place. P271+P403</p> <p>Wear protective gloves, protective clothing, eye protection, and/or face protection. P280</p> <p>In case of fire: Use suitable dry chemical for extinction. P370, P378</p> <p>Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P377</p> <p>Eliminate all ignition sources if safe to do so. P381</p> <p>Store contents under inert gas. Protect from moisture. P422, P232</p> <p>Use a back flow preventive device in the piping. CGA-PG05</p> <p>Use only with equipment purged with inert gas or evacuated prior to discharge from cylinder. CGA-PG17</p> <p>When returning cylinder, install leak tight valve outlet cap or plug. CGA-PG18</p> <p>Close valve after each use and when empty. CGA-PG06</p> <p>Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). CGA-PG02</p> <p>Read and follow the Safety Data Sheet (SDS) before use. CGA-PG27</p> <p>FIRST AID: IF ON SKIN: Immerse in cool water/wrap in wet bandages. Immediately call a POISON CENTER or doctor/physician. P302, P334, P310</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording). OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Flame, Environment, Corrosion
Transportation label(s)	4.2 Spontaneously Combustible, 4.3 Dangerous When Wet
NOTE— Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.5 Oxidizing gases and air

9.5.1 Nitrous Oxide	
DANGER:	<p>MAY CAUSE OR INTENSIFY FIRE; OXIDIZER. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY CAUSE DROWSINESS OR DIZZINESS. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY CAUSE FROSTBITE.</p> <p>Do not handle until all safety precautions have been read and understood. Keep and store away from clothing and other combustible materials. Keep valves and fittings free from grease and oil. Avoid breathing gas. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. In case of fire: Stop leak if safe to do so. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Use only with equipment cleaned for oxygen service. Open valve slowly. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>
	<p>Codes H270 H280 H336 OSHA-H01 CGA-HG01</p> <p>P202 P220 P244 P261 P262 P271+P403 P370+P376 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG22 CGA-PG21 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.</p> <p>IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>
	<p>P304, P340, P312 P302, P336, P315 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Flame over Circle, Gas Cylinder, Exclamation Mark
Transportation label(s)	2.2 Nonflammable Gas, 5.1 Oxidizer
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.5.2 Oxygen	
DANGER:	Codes
MAY CAUSE OR INTENSIFY FIRE; OXIDIZER.	H270
CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.	H280
Do not handle until all safety precautions have been read and understood.	P202
Keep and store away from clothing and other combustible materials.	P220
Keep valves and fittings free from grease and oil.	P244
Use and store only outdoors or in a well-ventilated place.	P271+P403
In case of fire: Stop leak if safe to do so.	P370+P376
Use a back flow preventive device in the piping.	CGA-PG05
Use only with equipment of compatible materials of construction and rated for cylinder pressure.	CGA-PG20+
Use only with equipment cleaned for oxygen service.	CGA-PG10
Open valve slowly.	CGA-PG22
Close valve after each use and when empty.	CGA-PG21
Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG06
Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG02
	CGA-PG27
DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols	
GHS pictogram(s)	Flame over Circle, Gas Cylinder
Transportation label(s)	2.2 Nonflammable Gas, 5.1 Oxidizer
<p>NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].</p> <p>NOTE—In the United States, for a package containing Oxygen, compressed, the OXIDIZER label modified to display the word "OXYGEN" instead of "OXIDIZER" and the class number "2" instead of "5.1" may be used in place of NON-FLAMMABLE GAS and OXIDIZER labels and the GHS Gas Cylinder pictogram shall also be used.</p> <p>NOTE—In Canada, for a package containing Oxygen, compressed, the OXIDIZER label modified to display the class number "2" instead of "5.1" shall be used in place of NON-FLAMMABLE GAS and OXIDIZER labels and the GHS Gas Cylinder pictogram shall also be used.</p>	

9.5.3 Nitrogen Trifluoride		
DANGER:	<p>MAY CAUSE OR INTENSIFY FIRE: OXIDIZER. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. HARMFUL IF INHALED. MAY CAUSE DAMAGE TO KIDNEY, LIVER, SPLEEN, AND CENTRAL NERVOUS SYSTEM. ASPHYXIATING EVEN WITH ADEQUATE OXYGEN. SYMPTOMS MAY BE DELAYED.</p> <p>Do not handle until all safety precautions have been read and understood. Keep and store away from clothing and other combustible materials. Keep valves and fittings free from grease and oil. Do not breathe gas. Use and store only outdoors or in a well-ventilated place. In case of fire: Stop leak if safe to do so. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Use only with equipment cleaned for oxygen service. Open valve slowly. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H270 H280 H332 H371 CGA-HG10 CGA-HG11 P202 P220 P244 P260 P271+P403 P370+P376 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG22 CGA-PG21 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P312 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Flame over Circle, Gas Cylinder, Exclamation Mark, Health Hazard
Transportation label(s)	2.2 Nonflammable Gas, 5.1 Oxidizer
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.5.4 Air, Compressed	
WARNING:	<p>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. SUPPORTS COMBUSTION.</p> <p>Do not handle until all safety precautions have been read and understood. Use a back flow preventive device in the piping. Use only equipment of compatible materials of construction and rated for cylinder pressure. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>
	<p>Codes H280 CGA-HG24</p> <p>P202 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG06 CGA-PG02 CGA-PG27</p> <p>OSHA-PG01</p>
Required symbols	
GHS pictogram(s)	Gas Cylinder
Transportation label(s)	2.2 Nonflammable Gas
<p>NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].</p>	

9.6 Refrigerated liquefied gases

9.6.1 Argon, Refrigerated Liquid Nitrogen, Refrigerated Liquid		
WARNING:	CONTAINS REFRIGERATED GAS; MAY CAUSE CRYOGENIC BURNS OR INJURY.	Codes H281
	MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.	OSHA-H01
	Do not handle until all safety precautions have been read and understood.	P202
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	Wear cold insulating gloves, face shield, and eye protection.	P282
	Use a back flow preventive device in the piping.	CGA-PG05
	DO NOT change or force fit connections.	CGA-PG24
	Close valve after each use and when empty.	CGA-PG06
	Always keep container in upright position.	CGA-PG23
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing.	P304, P340
	IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.	P302, P336, P315
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols	
GHS pictogram(s)	Gas Cylinder
Transportation label(s)	2.2 Nonflammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.6.2 Carbon Dioxide, Refrigerated Liquid		
WARNING:	CONTAINS REFRIGERATED GAS; MAY CAUSE CRYOGENIC BURNS OR INJURY. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY INCREASE RESPIRATION AND HEART RATE.	Codes H281 OSHA-H01 CGA-HG03
	Do not handle until all safety precautions have been read and understood. Use and store only outdoors or in a well-ventilated place. Wear cold insulating gloves, face shield, and eye protection. Use a back flow preventive device in the piping. DO NOT change or force fit connections. Close valve after each use and when empty. Always keep container in upright position. Read and follow the Safety Data Sheet (SDS) before use.	P202 P271+P403 P282 CGA-PG05 CGA-PG24 CGA-PG06 CGA-PG23 CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.	P304, P340 P302, P336, P315
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols	
GHS pictogram(s)	Gas Cylinder
Transportation label(s)	2.2 Nonflammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.6.3 Helium, Refrigerated Liquid Neon, Refrigerated Liquid		
WARNING:	CONTAINS REFRIGERATED GAS; MAY CAUSE CRYOGENIC BURNS OR INJURY. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.	Codes H281 OSHA-H01
	Do not handle until all safety precautions have been read and understood. Use and store only outdoors or in a well-ventilated place. Wear cold insulating gloves, face shield, and eye protection. Use a back flow preventive device in the piping. DO NOT change or force fit connections. Close valve after each use and when empty. Use insulated hoses and piping to avoid condensation of oxygen-rich liquid air. Always keep container in upright position. Read and follow the Safety Data Sheet (SDS) before use.	P202 P271+P403 P282 CGA-PG05 CGA-PG24 CGA-PG06 CGA-PG26 CGA-PG23 CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.	P304, P340 P302, P336, P315
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols	
GHS pictogram(s)	Gas Cylinder
Transportation label(s)	2.2 Nonflammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.6.4 Hydrogen, Refrigerated Liquid		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS REFRIGERATED GAS; MAY CAUSE CRYOGENIC BURNS OR INJURY. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY FORM EXPLOSIVE MIXTURES WITH AIR. BURNS WITH INVISIBLE FLAME.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Use and store only outdoors or in a well-ventilated place. Wear cold insulating gloves, face shield, and eye protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Use a back flow preventive device in the piping. DO NOT change or force fit connections. Close valve after each use and when empty. Use insulated hoses and piping to avoid condensation of oxygen-rich liquid air. Always keep container in upright position. Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H281 OSHA-H01 CGA-HG04 CGA-HG08 P202 P210 P271+P403 P282 P377 P381 CGA-PG05 CGA-PG24 CGA-PG06 CGA-PG26 CGA-PG23 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340 P302, P336, P315 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.6.5 Oxygen, Refrigerated Liquid		
DANGER:	<p>MAY CAUSE OR INTENSIFY FIRE; OXIDIZER. CONTAINS REFRIGERATED GAS; MAY CAUSE CRYOGENIC BURNS OR INJURY. COMBUSTIBLES IN CONTACT WITH LIQUID OXYGEN MAY EXPLODE ON IGNITION OR IMPACT.</p> <p>Do not handle until all safety precautions have been read and understood. Keep and store away from clothing and other combustible materials. Keep valves and fittings free from grease and oil. Use and store only outdoors or in a well-ventilated place. Wear cold insulating gloves, face shield, and eye protection. In case of fire: Stop leak if safe to do so. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Use only with equipment cleaned for oxygen service. DO NOT change or force fit connections. Avoid spills. Do not walk on or roll equipment over spills. Close valve after each use and when empty. Always keep container in upright position. Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H270 H281 CGA-HG13 P202 P220 P244 P271+P403 P282 P370+P376 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG22 CGA-PG24 CGA-PG28 CGA-PG06 CGA-PG23 CGA-PG27</p>
FIRST AID:	<p>IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.</p>	<p>P302, P336, P315</p>
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording)	OSHA-PG0

Required symbols	
GHS pictogram(s)	Flame over Circle, Gas Cylinder
Transportation label(s)	2.2 Nonflammable, 5.1 Oxidizer
<p>NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].</p> <p>NOTE—In the United States, for a package containing Oxygen, refrigerated liquid, the OXIDIZER label modified to display the word "OXYGEN" instead of "OXIDIZER" and the class number "2" instead of "5.1" may be used in place of NON-FLAMMABLE GAS and OXIDIZER labels and the GHS Gas Cylinder pictogram shall also be used.</p> <p>NOTE—In Canada, for a package containing Oxygen, refrigerated liquid, the OXIDIZER label modified to display the class number "2" instead of "5.1" shall be used in place of NON-FLAMMABLE GAS and OXIDIZER labels and the GHS Gas Cylinder pictogram shall also be used.</p>	

9.6.6 Nitrous Oxide, Refrigerated Liquid		
DANGER:	<p>MAY CAUSE OR INTENSIFY FIRE; OXIDIZER. CONTAINS REFRIGERATED GAS; MAY CAUSE CRYOGENIC BURNS OR INJURY. MAY CAUSE DROWSINESS OR DIZZINESS. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.</p> <p>Do not handle until all safety precautions have been read and understood. Keep and store away from clothing and other combustible materials. Keep valves and fittings free from grease and oil. Avoid breathing gas. Use and store only outdoors or in a well-ventilated place. Wear cold insulating gloves, face shield, and eye protection. In case of fire: Stop leak if safe to do so. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Use only with equipment cleaned for oxygen service. Avoid spills. Do not walk on or roll equipment over spills. Close valve after each use and when empty. Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H270 H281 H336 OSHA-H01 P202 P220 P244 P261 P271+P403 P282 P370+P376 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG22 CGA-PG28 CGA-PG06 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.</p> <p>IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P312 P302, P336, P315 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Flame over Circle, Gas Cylinder, Exclamation Mark
Transportation label(s)	2.2 Nonflammable, 5.1 Oxidizer
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.7 Toxic liquids and gases

9.7.1 Carbon Monoxide		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. TOXIC IF INHALED. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. CAUSES DAMAGE TO CENTRAL NERVOUS SYSTEM THROUGH PROLONGED OR REPEATED EXPOSURE. MAY FORM EXPLOSIVE MIXTURES WITH AIR. ASPHYXIATING EVEN WITH ADEQUATE OXYGEN.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Do not breathe gas. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Do not open valve until connected to equipment prepared for use. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H280 H331 H360 H372 CGA-HG04 CGA-HG10 P202 P210 P260 P271+P403 P280 P377 P381 P405 P501 CGA-PG05 CGA-PG12 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.</p> <p>IF EXPOSED OR CONCERNED: Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P311 P308+P313 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Gas Cylinder, Health Hazard
Transportation label(s)	2.3 Toxic Gas, 2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.7.2 Germane		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. FATAL IF INHALED. CAUSES DAMAGE TO BLOOD, LIVER, KIDNEY, AND OTHER ORGANS. MAY FORM EXPLOSIVE MIXTURES WITH AIR. SYMPTOMS MAY BE DELAYED.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe gas. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment purged with inert gas or evacuated prior to discharge from cylinder. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H280 H330 H370 CGA-HG04 CGA-HG11 P202 P210 P240 P241 P242 P243 P260 P264 P270 P271+P403 P280+P284 P377 P381 P405 P501 CGA-PG05 CGA-PG17 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG18 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P310 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Gas Cylinder, Health Hazard
Transportation label(s)	2.3 Toxic Gas, 2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.7.3 Arsine		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. FATAL IF INHALED. SUSPECTED OF CAUSING CANCER. MAY CAUSE LIVER DAMAGE THROUGH PROLONGED OR REPEATED EXPOSURE. VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS. MAY FORM EXPLOSIVE MIXTURES WITH AIR. SYMPTOMS MAY BE DELAYED.</p> <p>Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Do not breathe gas. Use and store only outdoors or in a well-ventilated place. Avoid release to the environment. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H280 H330 H351 H373 H410 CGA-HG04 CGA-HG11 P201 P202 P210 P260 P271+P403 P273 P280+P284 P377 P381 P405 P501 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG18 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF EXPOSED OR CONCERNED: Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P310 P308, P313 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Gas Cylinder, Health Hazard, Environment
Transportation label(s)	2.3 Toxic Gas, 2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.7.4 Cyanogen Deuterium Selenide Hydrogen Selenide		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. CAUSES SKIN AND EYE IRRITATION. FATAL IF INHALED. *VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS. MAY FORM EXPLOSIVE MIXTURES WITH AIR. SYMPTOMS MAY BE DELAYED.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Do not breathe gas. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. *Avoid release to the environment. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H280 H315+H320 H330 H410 CGA-HG04 CGA-HG11</p> <p>P202 P210 P260 P262 P271+P403 P273 P280+P284</p> <p>P377 P381 P405 P501</p> <p>CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG18 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF EXPOSED OR CONCERNED: Get medical advice/attention.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.</p> <p>IF EYE IRRITATION PERSISTS: Get medical advice/attention.</p> <p>IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P310</p> <p>P308, P313</p> <p>P305, P351, P338, P313</p> <p>P337, P313</p> <p>P302, P352, P362+P364, P313</p> <p>OSHA-PG01</p>

* These hazard and precautionary phrases and the Environment pictogram may be required to appear on the labels for Hydrogen Selenide and Deuterium Selenide only when shipped internationally.

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Gas Cylinder *Environment (may be required if shipped internationally)
Transportation label(s)	2.3 Toxic Gas, 2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.7.5 Carbonyl Sulfide		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. TOXIC IF INHALED. MAY FORM EXPLOSIVE MIXTURES WITH AIR. SYMPTOMS MAY BE DELAYED. EXTENDED EXPOSURE TO GAS REDUCES THE ABILITY TO SMELL SULFIDES.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surface – No smoking. Avoid breathing gas. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Do not depend on odor to detect presence of gas. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H280 H331 CGA-HG04 CGA-HG11 CGA-HG16</p> <p>P202 P210 P261 P271+P403 P280+P284 P377 P381 P405 P501 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG18 CGA-PG06 CGA-PG29 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P311 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Gas Cylinder
Transportation label(s)	2.3 Toxic Gas, 2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.7.6 Hydrogen Sulfide		
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. FATAL IF INHALED. MAY CAUSE RESPIRATORY IRRITATION. *VERY TOXIC TO AQUATIC LIFE. MAY FORM EXPLOSIVE MIXTURES WITH AIR. SYMPTOMS MAY BE DELAYED. EXTENDED EXPOSURE TO GAS REDUCES THE ABILITY TO SMELL SULFIDES.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Do not breathe gas. Use and store only outdoors or in a well-ventilated place. *Avoid release to the environment. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Do not depend on odor to detect presence of gas. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H220 H280 H330 H335 H400 CGA-HG04 CGA-HG11 CGA-HG16</p> <p>P202 P210 P260 P271+P403 P273 P280+P284 P377 P381 P405 P501 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG18 CGA-PG06 CGA-PG29 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.</p>	<p>P304, P340, P310</p>
DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).		OSHA-PG01

* These hazard and precautionary phrases and the Environment pictogram may be required to appear on the label only when shipped internationally.

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Gas Cylinder *Environment (may be required if shipped internationally)
Transportation label(s)	2.3 Toxic Gas, 2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.7.7 Phosphine	
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CATCHES FIRE SPONTANEOUSLY IF EXPOSED TO AIR. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. FATAL IF INHALED. *VERY TOXIC TO AQUATIC LIFE. MAY FORM EXPLOSIVE MIXTURES WITH AIR. SYMPTOMS MAY BE DELAYED.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Do not breathe gas. Use and store only outdoors or in a well-ventilated place. *Avoid release to the environment. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment purged with inert gas or evacuated prior to discharge from cylinder. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p> <p>FIRST AID:</p> <p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>
	<p>Codes</p> <p>H220 H250 H280 H314 H330 H400 CGA-HG04 CGA-HG11</p> <p>P202 P210 P260 P271+P403 P273 P280+P284</p> <p>P377 P381 P405 P501</p> <p>CGA-PG05 CGA-PG17 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG18 CGA-PG06 CGA-PG02 CGA-PG27</p> <p>P304, P340, P310</p> <p>P305, P351, P338, P310</p> <p>P303, P361, P353, P363, P310</p> <p>OSHA-PG01</p>

* These hazard and precautionary phrases and the Environment pictogram may be required to appear on the label only when shipped internationally.

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Gas Cylinder, Corrosion *Environment (may be required if shipped internationally)
Transportation label(s)	2.3 Toxic Gas, 2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.7.8 Diborane	
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CATCHES FIRE SPONTANEOUSLY IF EXPOSED TO AIR. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. CAUSES SKIN AND EYE IRRITATION. FATAL IF INHALED. MAY CAUSE DAMAGE TO LUNG, KIDNEY, AND CENTRAL NERVOUS SYSTEM. MAY FORM EXPLOSIVE MIXTURES WITH AIR. SYMPTOMS MAY BE DELAYED.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Do not breathe gas. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use equipment purged with inert gas or evacuated prior to discharge from cylinder. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Decomposition Hazard: Store under dry ice. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p> <p>FIRST AID:</p> <p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.</p> <p>IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. Get medical advice/attention.</p> <p>IF SKIN IRRITATION OCCURS: Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>
	<p>Codes</p> <p>H220 H250 H280 H315+H320 H330 H371</p> <p>CGA-HG04 CGA-HG11</p> <p>P202 P210 P260 P262 P271+P403 P280+P284</p> <p>P377 P381 P405 P501</p> <p>CGA-PG05 CGA-PG17</p> <p>CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG18 CGA-PG06 CGA-PG31 CGA-PG02 CGA-PG27</p> <p>P304, P340, P310</p> <p>P305, P351, P338, P313</p> <p>P302, P352, P362+P364, P313</p> <p>P332, P313</p> <p>OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Gas Cylinder, Health Hazard
Transportation label(s)	2.3 Toxic Gas, 2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.7.9 Methyl Bromide		Codes
DANGER:	FLAMMABLE GAS.	H221
	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.	H280
	CAUSES SKIN IRRITATION.	H315
	CAUSES SERIOUS EYE IRRITATION.	H319
	FATAL IF INHALED.	H330
	MAY CAUSE RESPIRATORY IRRITATION.	H335
	SUSPECTED OF CAUSING GENETIC DEFECTS.	H341
	MAY CAUSE DAMAGE TO NERVOUS SYSTEM, LUNG, KIDNEY AND LIVER THROUGH PROLONGED OR REPEATED EXPOSURE.	H373
	*VERY TOXIC TO AQUATIC LIFE.	H400
	HARMS PUBLIC HEALTH AND THE ENVIRONMENT BY DESTROYING OZONE IN THE UPPER ATMOSPHERE.	H420
	MAY FORM EXPLOSIVE MIXTURES WITH AIR.	CGA-HG04
	SYMPTOMS MAY BE DELAYED.	CGA-HG11
	Obtain special instructions before handling.	P201
	Do not handle until all safety precautions have been read and understood.	P202
	Keep away from heat, open flames, sparks, hot surfaces. – No smoking.	P210
	Do not breathe gas.	P260
	Do not get in eyes, on skin, or on clothing.	P262
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	*Avoid release to the environment.	P273
	Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection.	P280+P284
	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.	P377
	Eliminate all ignition sources if safe to do so.	P381
	Store locked up.	P405
	Dispose of contents/container in accordance with container supplier/owner instructions.	P501
	Use a back flow preventive device in the piping.	CGA-PG05
	Use only with equipment of compatible materials of construction and rated for cylinder pressure.	CGA-PG20+
	Do not open valve until connected to equipment prepared for use.	CGA-PG10
	When returning cylinder, install leak tight valve outlet cap or plug.	CGA-PG12
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG18
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG02
		CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.	P304, P340, P310
	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.	P305, P351, P338, P313
	IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. Get medical advice/attention.	P302, P352, P362+P364, P313
	IF SKIN IRRITATION OCCURS: Get medical advice/attention.	P332, P313
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

NOTE—Methyl bromide, because of ozone depleting properties, shall be labeled as follows: Warning: Contains methyl bromide, a substance which harms the public health and environment by destroying ozone in the upper atmosphere.

* These hazard and precautionary phrases and the Environment pictogram may be required to appear on the label only when shipped internationally.

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Gas Cylinder, Health Hazard, Exclamation Mark, Environment, *Environment (may be required if shipped internationally)
Transportation label(s)	2.3 Toxic Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.7.10 Methyl Mercaptan		
DANGER:	EXTREMELY FLAMMABLE GAS.	Codes H220
	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.	H280
	TOXIC IF INHALED.	H331
	*VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.	H410
	MAY FORM EXPLOSIVE MIXTURES WITH AIR.	CGA-HG04
	Do not handle until all safety precautions have been read and understood.	P202
	Keep away from heat, open flames, sparks, hot surfaces. – No smoking.	P210
	Avoid breathing gas.	P261
	Do not get in eyes, on skin, or on clothing.	P262
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	*Avoid release to the environment.	P273
	Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection.	P280+P284
	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.	P377
	Eliminate all ignition sources if safe to do so.	P381
	*Collect spillage.	P391
	Store locked up.	P405
	Dispose of contents/container in accordance with container supplier/owner instructions.	P501
	Use a back flow preventive device in the piping.	CGA-PG05
	Use only with equipment of compatible materials of construction and rated for cylinder pressure.	CGA-PG20+
		CGA-PG10
	Do not open valve until connected to equipment prepared for use.	CGA-PG12
	Close valve after each use and when empty.	CGA-PG06
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG02
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.	P304, P340, P311
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

* These hazard and precautionary phrases and the Environment pictogram may be required to appear on the label only when shipped internationally.

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Gas Cylinder *Environment (may be required if shipped internationally)
Transportation label(s)	2.3 Toxic Gas, 2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.7.11 Ethylene Oxide		Codes
DANGER:	EXTREMELY FLAMMABLE GAS.	H220
	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.	H280
	CAUSES SKIN AND EYE IRRITATION.	H315+H320
	MAY CAUSE AN ALLERGIC SKIN REACTION.	H317
	TOXIC IF INHALED.	H331
	MAY CAUSE RESPIRATORY IRRITATION.	H335
	MAY CAUSE GENETIC DAMAGE.	H340
	MAY CAUSE CANCER.	H350
	MAY DAMAGE FERTILITY OR THE UNBORN CHILD.	H360
	CAUSES DAMAGE TO NERVOUS SYSTEM AND KIDNEY THROUGH PROLONGED OR REPEATED EXPOSURE	H372
	MAY FORM EXPLOSIVE MIXTURES WITH AIR.	CGA-HG04
	SYMPTOMS MAY BE DELAYED.	CGA-HG11
	Obtain special instructions before use.	P201
	Do not handle until all safety precautions have been read and understood.	P202
	Keep away from heat, open flames, sparks, hot surfaces. – No smoking.	P210
	Do not breathe gas.	P260
	Do not get in eyes, on skin, or on clothing.	P262
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection.	P280+P284
	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.	P377
	Eliminate all ignition sources if safe to do so.	P381
	Store locked up.	P405
	Dispose of contents/container in accordance with container supplier/owner instructions.	P501
	Use a back flow preventive device in the piping.	CGA-PG05
	Use only with equipment of compatible materials of construction and rated for cylinder pressure.	CGA-PG20+
	Do not open valve until connected to equipment prepared for use.	CGA-PG10
	Close valve after each use and when empty.	CGA-PG12
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG06
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG02
		CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.	P304, P340, P311
	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.	P305, P351, P338, P313
	IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. Get medical advice/attention.	P302, P352, P362+P364, P313
	IF SKIN IRRITATION OCCURS: Get medical advice/attention.	P332, P313
DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).		OSHA-PG01

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Gas Cylinder, Health Hazard
Transportation label(s)	2.3 Toxic Gas, 2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.7.12 Trifluorochloroethylene (R1113)

NOTE—The number in parentheses is a refrigerant designation that is shown here for reference only and is not required on the label.

DANGER:	EXTREMELY FLAMMABLE GAS.	Codes
	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.	H220
	TOXIC IF INHALED.	H280
	MAY FORM EXPLOSIVE MIXTURES WITH AIR.	H331
	MAY CAUSE FROSTBITE.	CGA-HG04
		CGA-HG01
	Do not handle until all safety precautions have been read and understood.	P202
	Keep away from heat, open flames, sparks, hot surfaces. – No smoking.	P210
	Avoid breathing gas.	P261
	Do not get in eyes, on skin, or on clothing.	P262
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.	P377
	Eliminate all ignition sources if safe to do so.	P381
	Store locked up.	P405
	Use a back flow preventive device in the piping.	CGA-PG05
	Close valve after each use and when empty.	CGA-PG06
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG02
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.	P304, P340, P311
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols

GHS pictogram(s)	Skull and Crossbones, Flame, Gas Cylinder, Health Hazard, Exclamation Mark
Transportation label(s)	2.3 Toxic Gas, 2.1 Flammable Gas

NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].

9.8 Toxic and corrosive liquids and gases

9.8.1	Boron Trichloride Deuterium Chloride Hydrogen Bromide	Hydrogen Chloride Hydrogen Iodide Sulfur Dioxide
DANGER:	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. TOXIC IF INHALED. CORROSIVE TO THE RESPIRATORY TRACT.	Codes H280 H314 H331 CGA-HG22
	Do not handle until all safety precautions have been read and understood. Avoid breathing gas. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.	P202 P261 P262 P271+P403 P280+P284 P405 P501 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG18 CGA-PG06 CGA-PG02 CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician. DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	P304, P340, P311 P305, P351, P338, P310 P303, P361, P353, P363, P310 OSHA-PG01

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Corrosion, Gas Cylinder
Transportation label(s)	2.3 Toxic gas, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.8.2 Silicon Tetrafluoride		
DANGER:	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. FATAL IF INHALED. CORROSIVE TO THE RESPIRATORY TRACT.	Codes H280 H314 H330 CGA-HG22
	Do not handle until all safety precautions have been read and understood.	P202
	Do not breathe gas.	P260
	Do not get in eyes, on skin, or on clothing.	P262
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection.	P280+P284
	Store locked up.	P405
	Dispose of contents/container in accordance with container supplier/owner instructions.	P501
	Use a back flow preventive device in the piping.	CGA-PG05
	Use only with equipment of compatible materials of construction and rated for cylinder pressure.	CGA-PG20+ CGA-PG10
	Do not open valve until connected to equipment prepared for use.	CGA-PG12
	When returning cylinder, install leak tight valve outlet cap or plug.	CGA-PG18
	Close valve after each use and when empty.	CGA-PG06
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG02
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.	P304, P340, P310
	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.	P305, P351, P338, P310
	IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.	P303, P361, P353, P363, P310
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Corrosion, Gas Cylinder
Transportation label(s)	2.3 Toxic gas, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.8.3 Boron Trifluoride	
DANGER:	<p>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. FATAL IF INHALED. MAY CAUSE DAMAGE TO KIDNEYS. SYMPTOMS MAY BE DELAYED. CORROSIVE TO THE RESPIRATORY TRACT.</p> <p>Do not handle until all safety precautions have been read and understood. Do not breathe gas. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>
	<p>Codes H280 H314 H330 H371 CGA-HG11 CGA-HG22 P202 P260 P262 P271+P403 P280+P284 P405 P501 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG18 CGA-PG06 CGA-PG02 CGA-PG27 P304, P340, P310 P305, P351, P338, P310 P303, P361, P353, P363, P310 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Corrosion, Gas Cylinder, Health Hazard
Transportation label(s)	2.3 Toxic gas, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.8.4 Chlorine	
DANGER:	<p>MAY CAUSE OR INTENSIFY FIRE; OXIDIZER. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. FATAL IF INHALED. *VERY TOXIC TO AQUATIC LIFE. CORROSIVE TO THE RESPIRATORY TRACT.</p> <p>Do not handle until all safety precautions have been read and understood. Keep valves and fittings free from grease and oil. Do not breathe gas. Wash hands thoroughly after handling. Use and store only outdoors or in a well-ventilated place. *Avoid release to the environment. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. In case of fire: Stop leak if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p> <p>FIRST AID: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>
	<p>Codes</p> <p>H270 H280 H314 H330 H400 CGA-HG22</p> <p>P202 P244 P260 P264 P271+P403 P273 P280+P284 P370+P376 P405 P501</p> <p>CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG18 CGA-PG06 CGA-PG02 CGA-PG27</p> <p>P304, P340, P310</p> <p>P305, P351, P338, P310</p> <p>P303, P361, P353, P363, P310</p> <p>OSHA-PG01</p>

* These hazard and precautionary phrases and the Environment pictogram may be required to appear on the label only when shipped internationally.

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Corrosion, Flame over Circle, Gas Cylinder *Environment (may be required if shipped internationally)
Transportation label(s)	2.3 Toxic Gas, 5.1 Oxidizer, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.8.5 Dichlorosilane	
DANGER:	<p>EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. FATAL IF INHALED. CORROSIVE TO THE RESPIRATORY TRACT. SYMPTOMS MAY BE DELAYED.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Do not breathe gas. Wash hands thoroughly after handling. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p> <p>FIRST AID: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>
	<p>Codes H220 H280 H314 H330 CGA-HG22 CGA-HG11 P202 P210 P260 P264 P271+P403 P280+P284 P377 P381 P405 P501 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG18 CGA-PG06 CGA-PG02 CGA-PG27 P304, P340, P310 P305, P351, P338, P310 P303, P361, P353, P363, P310 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame, Corrosion, Gas Cylinder
Transportation label(s)	2.3 Toxic Gas, 2.1 Flammable Gas, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.8.6 Hydrogen Fluoride	
DANGER:	Codes
FATAL IN CONTACT WITH SKIN.	H310
CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.	H314
TOXIC IF INHALED.	H331
CORROSIVE TO THE RESPIRATORY TRACT.	CGA-HG22
SYMPTOMS MAY BE DELAYED.	CGA-HG11
Do not handle until all safety precautions have been read and understood.	P202
Avoid breathing vapor.	P261
Do not get in eyes, on skin, or on clothing.	P262
Wash hands thoroughly after handling.	P264
Do not eat, drink or smoke when using this product.	P270
Use and store only outdoors or in a well-ventilated place.	P271+P403
Wear protective gloves, protective clothing, eye protection, and/or face protection.	P280
Store locked up.	P405
Dispose of contents/container in accordance with container supplier/owner instructions.	P501
Use a back flow preventive device in the piping.	CGA-PG05
Use only with equipment of compatible materials of construction and rated for cylinder pressure.	CGA-PG20+
Do not open valve until connected to equipment prepared for use.	CGA-PG10
Close valve after each use and when empty.	CGA-PG12
Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG06
Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG02
	CGA-PG27
FIRST AID:	
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.	P304, P340, P311
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.	P305, P351, P338, P310
IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.	P303, P361, P353, P363, P310
SPECIFIC TREATMENT: Apply calcium gluconate cream to affected areas on skin.	P321
DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

NOTE—For shipments originating in Canada, the wording "Inhalation Hazard" shall not appear on the label but shall be marked elsewhere on the package.

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Corrosion
Transportation label(s)	8 Corrosive, 6.1 Poison Inhalation Hazard
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.8.7 Phosgene	
DANGER:	<p>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. FATAL IF INHALED. SYMPTOMS MAY BE DELAYED. CORROSIVE TO THE RESPIRATORY TRACT.</p> <p>Do not handle until all safety precautions have been read and understood. Do not breathe gas. Wash hands thoroughly after handling. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Do not open valve until connected to equipment prepared for use. Use only with equipment of compatible materials of construction and rated for cylinder pressure. When returning cylinder, install leak tight valve outlet cap or plug. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Corrosion, Gas Cylinder
Transportation label(s)	2.3 Toxic Gas, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.8.8 Tungsten Hexafluoride		
DANGER:	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.	Codes H280
	CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.	H314
	FATAL IF INHALED.	H330
	CORROSIVE TO THE RESPIRATORY TRACT.	CGA-HG22
	SYMPTOMS MAY BE DELAYED.	CGA-HG11
	Do not handle until all safety precautions have been read and understood.	P202
	Do not breathe gas.	P260
	Wash hands thoroughly after handling.	P264
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection.	P280+P284
	Store locked up.	P405
	Dispose of contents/container in accordance with container supplier/owner instructions.	P501
	Use a back flow preventive device in the piping.	CGA-PG05
	Use only with equipment of compatible materials of construction and rated for cylinder pressure.	CGA-PG20+
		CGA-PG10
	Do not open valve until connected to equipment prepared for use.	CGA-PG12
	When returning cylinder, install leak tight valve outlet cap or plug.	CGA-PG18
	Close valve after each use and when empty.	CGA-PG06
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG02
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.	P304, P340, P310
	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.	P305, P351, P338, P310
	IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.	P303, P361, P353, P363, P310
	SPECIFIC TREATMENT: Apply calcium gluconate cream to affected areas on skin.	P321
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Corrosion, Gas Cylinder
Transportation label(s)	2.3 Toxic Gas, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.9 Toxic, oxidizing, and corrosive gases

9.9.1 Chlorine Trifluoride		Codes
DANGER:	MAY CAUSE OR INTENSIFY FIRE; OXIDIZER.	H270
	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.	H280
	CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.	H314
	FATAL IF INHALED.	H330
	*VERY TOXIC TO AQUATIC LIFE.	H400
	SYMPTOMS MAY BE DELAYED	CGA-HG11
	EXTREMELY REACTIVE.	CGA-HG23
	CORROSIVE TO THE RESPIRATORY TRACT.	CGA-HG22
	Obtain special instructions before use.	P201
	Do not handle until all safety precautions have been read and understood.	P202
	Keep and store away from clothing and other combustible materials.	P220
	Keep valves and fittings free from grease and oil.	P244
	Do not breathe gas.	P260
	Do not get in eyes, on skin, or on clothing.	P262
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	*Avoid release to the environment.	P273
	Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection.	P280+P284
	In case of fire: Stop leak if safe to do so.	P370+P376
	Store locked up.	P405
	Dispose of contents/container in accordance with container supplier/owner instructions.	P501
	Use a back flow preventive device in the piping.	CGA-PG05
	Use only with equipment rated for cylinder pressure.	CGA-PG10
	Use only with compatible materials of construction, with equipment cleaned for oxygen service, and with equipment passivated before use.	CGA-PG20+ CGA-PG22+ CGA-PG32
	Use behind barricades with remote extensions on valves and regulators.	CGA-PG33
FIRST AID:	Do not open valve until connected to equipment prepared for use.	CGA-PG12
	When returning cylinder, install leak tight valve outlet cap or plug.	CGA-PG18
	Open valve slowly.	CGA-PG21
	Close valve after each use and when empty.	CGA-PG06
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG02
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27
	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.	P304, P340, P310
	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.	P305, P351, P338, P313
	IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.	P303, P361, P353
	IF SKIN IRRITATION OCCURS: Get medical advice/attention.	P332, P313
DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).		OSHA-PG01

* These hazard and precautionary phrases and the Environment pictogram may be required to appear on the label only when shipped internationally.

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame over Circle, Corrosion, Gas Cylinder *Environment (may be required if shipped internationally)
Transportation label(s)	2.3 Toxic Gas, 5.1 Oxidizer, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.9.2 Fluorine	
DANGER:	<p>MAY CAUSE OR INTENSIFY FIRE; OXIDIZER. H270</p> <p>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. H280</p> <p>CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. H314</p> <p>FATAL IF INHALED. H330</p> <p>EXTREMELY REACTIVE. CGA-HG23</p> <p>CORROSIVE TO THE RESPIRATORY TRACT. CGA-HG22</p> <p>Obtain special instructions before use. P201</p> <p>Do not handle until all safety precautions have been read and understood. P202</p> <p>Keep and store away from clothing and other combustible materials. P220</p> <p>Keep valves and fittings free from grease and oil. P244</p> <p>Do not breathe gas. P260</p> <p>Wash hands thoroughly after handling. P264</p> <p>Use and store only outdoors or in a well-ventilated place. P271+P403</p> <p>Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. P280+P284</p> <p>In case of fire: Stop leak if safe to do so. P370+P376</p> <p>Store locked up. P405</p> <p>Dispose of contents/container in accordance with container supplier/owner instructions. P501</p> <p>Use a back flow preventive device in the piping. CGA-PG05</p> <p>Use only with equipment rated for cylinder pressure. CGA-PG10</p> <p>Use only with compatible materials of construction, with equipment cleaned for oxygen service, and with equipment passivated before use. CGA-PG20+ CGA-PG22+ CGA-PG32</p> <p>Use behind barricades with remote extensions on valves and regulators. CGA-PG33</p> <p>Do not open valve until connected to equipment prepared for use. CGA-PG12</p> <p>When returning cylinder, install leak tight valve outlet cap or plug. CGA-PG18</p> <p>Open valve slowly. CGA-PG21</p> <p>Close valve after each use and when empty. CGA-PG06</p> <p>Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). CGA-PG02</p> <p>Read and follow the Safety Data Sheet (SDS) before use. CGA-PG27</p> <p>FIRST AID:</p> <p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. P304, P340, P310</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention. P305, P351, P338, P313</p> <p>IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. P303, P361, P353</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording). OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame over Circle, Corrosion, Gas Cylinder
Transportation label(s)	2.3 Toxic Gas, 5.1 Oxidizer, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.9.3 Nitric Oxide		
DANGER:	<p>MAY CAUSE OR INTENSIFY FIRE; OXIDIZER. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. FATAL IF INHALED. MAY CAUSE DAMAGE TO LUNGS. SYMPTOMS MAY BE DELAYED.</p> <p>Do not handle until all safety precautions have been read and understood. Keep and store away from clothing and other combustible materials. Keep valves and fittings free from grease and oil. Do not breathe gas. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. In case of fire: Stop leak if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Use only with equipment cleaned for oxygen service. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Open valve slowly. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H270 H280 H314 H330 H371 CGA-HG11</p> <p>P202 P220 P244 P260 P262 P271+P403 P280+P284 P370+P376 P405 P501 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG22 CGA-PG12 CGA-PG18 CGA-PG21 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.</p> <p>IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.</p> <p>IF SKIN IRRITATION OCCURS: Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P310</p> <p>P305, P351, P338, P313</p> <p>P303, P361, P353</p> <p>P332 , P313</p> <p>OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame over Circle, Corrosion, Gas Cylinder
Transportation label(s)	2.3 Toxic Gas, 5.1 Oxidizer, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.9.4 Nitrogen Dioxide (Dinitrogen Tetroxide)		
DANGER:	<p>MAY CAUSE OR INTENSIFY FIRE; OXIDIZER. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. FATAL IF INHALED. MAY CAUSE DAMAGE TO LUNGS. SYMPTOMS MAY BE DELAYED.</p> <p>Do not handle until all safety precautions have been read and understood. Keep and store away from clothing and other combustible materials. Keep valves and fittings free from grease and oil. Do not breathe gas. Do not get in eyes, on skin, or on clothing. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection. In case of fire: Stop leak if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment cleaned for oxygen service. Do not open valve until connected to equipment prepared for use. When returning cylinder, install leak tight valve outlet cap or plug. Open valve slowly. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H270 H280 H314 H330 H371 CGA-HG11</p> <p>P202 P220 P244 P260 P262 P271+P403 P280+P284 P370+P376 P405 P501 CGA-PG05 CGA-PG22 CGA-PG12 CGA-PG18 CGA-PG21 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.</p> <p>IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.</p> <p>IF SKIN IRRITATION OCCURS: Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P310</p> <p>P305, P351, P338, P310</p> <p>P303, P361, P353</p> <p>P332 , P313</p> <p>OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Skull and Crossbones, Flame over Circle, Corrosion, Gas Cylinder
Transportation label(s)	2.3 Toxic Gas, 5.1 Oxidizer, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.10 Corrosive liquids and gases

9.10.1 Anhydrous Ammonia*		Codes
DANGER:	FLAMMABLE GAS.	H221
	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.	H280
	CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.	H314
	HARMFUL IF INHALED.	H332
	**VERY TOXIC TO AQUATIC LIFE.	H400
	CORROSIVE TO THE RESPIRATORY TRACT.	CGA-HG22
	Do not handle until all safety precautions have been read and understood.	P202
	Keep away from heat, open flames, sparks, hot surfaces. – No smoking.	P210
	Do not breathe gas.	P260
	Do not get in eyes, on skin, or on clothing.	P262
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	**Avoid release to the environment.	P273
	Wear protective gloves, protective clothing, eye protection, and/or face protection.	P280
	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.	P377
	Eliminate all ignition sources if safe to do so.	P381
	Dispose of contents/container in accordance with container supplier/owner instructions.	P501
	Use a back flow preventive device in the piping.	CGA-PG05
	Use only with equipment of compatible materials of construction and rated for cylinder pressure.	CGA-PG20+
	Do not open valve until connected to equipment prepared for use.	CGA-PG10
	Close valve after each use and when empty.	CGA-PG12
FIRST AID:	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG06
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG02
		CGA-PG27
	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call POISON CENTER or doctor/physician if you feel unwell.	P304, P340, P312
	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.	P305, P351, P338, P310
	IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.	P303, P361, P353, P363, P310
	IF SKIN IRRITATION OCCURS: Get medical advice/attention.	P332, P313
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

NOTE—For domestic shipment of Anhydrous Ammonia, the container shall be marked with the words INHALATION HAZARD in association with the proper shipping name and identification number.

* GHS classifies ammonia as a Category 2 Flammable Gas for the workplace. For transport, its classification is based on other hazards. For example, in the United States, it is classified as a nonflammable gas, while outside the United States it is classified as a toxic gas. Consult applicable regulations.

** These hazard and precautionary phrases and the Environment pictogram may be required to appear on the label only when shipped internationally.

Required symbols	
GHS pictogram(s)	U.S. only: Corrosion, Gas Cylinder, Exclamation Mark International: Skull and Crossbones, Corrosion, Gas Cylinder, **Environment
Transportation label(s)	U.S. only: 2.2 Nonflammable Gas (INHALATION HAZARD) International: 2.3 Toxic Gas, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.10.2 Trichlorosilane		
DANGER:	<p>EXTREMELY FLAMMABLE LIQUID AND VAPOR. IN CONTACT WITH WATER RELEASES FLAMMABLE GASES WHICH MAY IGNITE SPONTANEOUSLY. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. HARMFUL IF INHALED. MAY FORM EXPLOSIVE MIXTURES WITH AIR. CORROSIVE TO THE RESPIRATORY TRACT.</p> <p>Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Do not allow contact with air. Do not allow contact with water. Handle under inert gas, protect from moisture. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe vapor. Wash hands thoroughly after handling. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, and/or face protection. In case of fire: Do not use water. Use AFFF alcohol-compatible foam to extinguish. Eliminate all ignition sources if safe to do so. Store locked up. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H224 H260 H314 H332 CGA-HG04 CGA-HG22 P202 P210 P222 P223 P231+P232 P233 P240 P241 P242 P243 P260 P264 P271+P403 P280 P370, P378 P381 P405 P501 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call POISON CENTER or doctor/physician if you feel unwell.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.</p> <p>IF SKIN IRRITATION OCCURS: Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P312 P305, P351, P338, P310 P303, P361, P353, P363, P310 P332 , P313 OSHA-PG01</p>

Required symbols	
GHS pictogram(s)	Flame, Corrosion
Transportation label(s)	4.3 Dangerous When Wet, 3 Flammable Liquid, 8 Corrosive
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

9.10.3	Dimethylamine Monoethylamine	Monomethylamine Trimethylamine	
DANGER:	EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. CAUSES SKIN IRRITATION. CAUSES SERIOUS EYE DAMAGE. HARMFUL IF INHALED. MAY CAUSE RESPIRATORY IRRITATION.		Codes H220 H280 H315 H318 H332 H335
	Do not handle until all safety precautions have been read and understood. Keep away from heat, open flames, sparks, hot surfaces. – No smoking. Avoid breathing gas. Wash hands thoroughly after handling. Use and store only outdoors or in a well-ventilated place. Wear protective gloves, protective clothing, eye protection, and/or face protection. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Dispose of contents/container in accordance with container supplier/owner instructions. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.		P202 P210 P261 P264 P271+P403 P280 P377 P381 P501 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG12 CGA-PG06 CGA-PG02 CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call POISON CENTER or doctor/physician if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Get medical advice/attention. IF SKIN IRRITATION OCCURS: Get medical advice/attention. DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).		P304, P340, P312 P305, P351, P338, P310 P303, P361, P353, P363, P313 P332, P313 OSHA-PG01

Required symbols	
GHS pictogram(s)	Flame, Gas Cylinder, Exclamation Mark, Corrosion
Transportation label(s)	2.1 Flammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

10 References

Unless otherwise specified, the latest edition shall apply.

[1] *Globally Harmonized System of Classification and Labelling of Chemicals (GHS)*, United Nations Economic Commission for Europe, Palais de Nations, 1211 Geneva 10, Switzerland. www.unece.org

[2] *Code of Federal Regulations*, Title 29 (Labor), Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20401. www.gpo.gov

[3] *Code of Federal Regulations*, Title 49 (Transportation), Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20401. www.gpo.gov

[4] *Transportation of Dangerous Goods Regulations*, Transport Canada, Canadian Government Publishing, Public Works and Government Services Canada, Ottawa, ON K1A 0S9, Canada. www.tc.gc.ca

[5] CGA P-11, *Metric Practice Guide for the Compressed Gas Industry*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com

[6] ISO 10156:2010, *Gases and gas mixtures — Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com

[7] International Air Transport Association, 800 Place Victoria, Post Office Box 113, Montreal, PQ, H4Z 1M1, Canada. www.iata.org

[8] *United States Pharmacopoeia and National Formulary*, U.S. Pharmacopoeia, 12601 Twinbrook Pkwy., Rockville, MD 20850. www.usp.org

[9] *Code of Federal Regulations*, Title 21 (Food and Drugs), Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20401. www.gpo.gov

[10] *Food, Drug, and Cosmetic Act*, U.S. Food and Drug Administration, 5600 Fishers Ln., Rockville, MD 20857. www.fda.gov

[11] CGA C-9, *Standard Color Marking of Compressed Gas Containers for Medical Use*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com

[12] ISO 10156:1996, *Gases and gas mixtures — Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets*, International Organization for Standardization, 1 rue de Varembe, Case postale 56, CH-1211 Geneva 20, Switzerland. www.iso.org

[13] *Recommendations on the Transport of Dangerous Goods, Model Regulations*, United Nations Economic Commission for Europe, Palais des Nations, CH-1211 Geneva 10, Switzerland. www.unece.org

[14] EIGA Doc 169/13, *Classification, and Labelling Guide in accordance with EC Regulation 1272/2008 (CLP Regulation)*, European Industrial Gases Association, Avenue des Arts 3-5, B-1210 Brussels, Belgium. www.eiga.eu

[15] ISO 13338:1995, *Determination of tissue corrosiveness of a gas or gas mixture*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com

[16] CGA P-58, *Safe Preparation of Compressed Oxidant-Fuel Gas Mixtures in Cylinders*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com

[17] CGA P-20, *Standard for the Classification of Toxic Gas Mixtures*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com

[18] CGA SB-26, *Cylinder Connections on Portable Liquid Cryogenic Cylinders*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com

[19] EC Directive 842/2006, European Union <http://europa.eu.int/eur-lex/en/index.html>

11 Additional references

Sax's Dangerous Properties of Industrial Materials, John Wiley & Sons, Inc., 111 River St., Hoboken, NJ 07030. www.wiley.com

Encyclopedie Des Gaz, (Gas Encyclopaedia), L'Air Liquide, Elsevier Science Publishing Company Inc., 360 Park Ave. S., New York, NY 10010. Available on Amazon.com, www.amazon.com

Handbook of Compressed Gases, Fifth Edition, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, VA 20151. www.cganet.com

Patty's Industrial Hygiene and Toxicology, John Wiley & Sons, Inc., 111 River St., Hoboken, NJ 07030. www.wiley.com. Available at Amazon.com, www.amazon.com

Safety Data Sheets: Airgas; American Air Liquide; Air Products and Chemicals, Inc.; E.I. DuPont; Linde; Matheson; Praxair; and Voltaix.

Matheson Gas Data Book, Yaws, Carl, McGraw-Hill Professional, P.O. Box 182604, Columbus, OH 43272. www.mcgraw-hill.com

Registry of Toxic Effects of Chemical Substances, MDL Information Systems, 14600 Catalina St., San Leandro, CA 94577. www.mdl.com

ACGIH #0113, TLVs® and BEIs®, American Conference of Governmental and Industrial Hygienists, 1330 Kemper Meadow Dr., Cincinnati, OH 45240. www.acgih.org

Appendix A—CGA marking system for compressed gas cylinders (Normative)

CGA's marking system consists of the basic marking and additional precautionary and government required information.

A.1 Compliance

CGA developed the basic marking to provide immediate identification of cylinder contents by using the DOT/TC proper shipping name, UN identification number, and hazard class diamond within a single marking. Certain cylinders that bear the basic marking are allowed to be transported, without further DOT labeling and marking, under specific conditions set forth by DOT in 49 CFR 172.400a or the *Transportation of Dangerous Goods Regulations* in Canada [3, 4]. In the United States, 49 CFR Part 172.400a(a)(1) authorizes this basic marking for cylinders containing compressed gases, which are not overpacked.

NOTE—In accordance with 49 CFR 171.10, where SI (metric) units appear, they are the regulatory standard. U.S. Standard or customary units, which appear in parenthesis following the SI units, are for information only [3].

A.2 DOT/TC labels and markings

The basic marking, illustrated in Figure A-1, shall consist of a diamond-shaped figure indicating the hazard class of the contained gas combined with a panel containing the DOT/TC proper shipping name of the contained gas and the UN identification number. The panel shall be located to the left of the diamond.

Both 49 CFR 172.101 and the *Transportation of Dangerous Goods Regulations* specify that certain gases with subsidiary hazards require multiple square-on-point (diamond) labels. For such gases, the basic marking shall include additional diamonds denoting the subsidiary hazard or hazards. Hazard class numbers shall appear on both the primary and subsidiary hazard diamond or diamonds. The diamonds shall be adjacent to one another but their adjoining points are allowed to be overlapped by not more than 10 mm (0.375 in), as illustrated in Figure A-2. The primary hazard diamond shall be placed to the left of the subsidiary hazard diamond(s) and not overlapped. Subsidiary labels shall only be overlapped on the left side. In the United States, truncating of the diamonds is permitted, as illustrated in Figure A-3.

The letters USP or NF, as required by FDA or HPFBI, are also allowed to be shown in this panel following the proper shipping name or product identification number. USP refers to United States Pharmacopeia and NF refers to National Formulary, both of which are published by the United States Pharmacopeia [14]. Refer to Appendices B and C for additional information.

For Medical Air, the proper shipping name is "Air, compressed" and the USP monograph name is "Medical Air, USP". The letters USP are not allowed to follow the proper shipping name "Air, compressed". "Medical Air, USP" may appear in the left panel along with the proper shipping name as shown in Figure A-4, or it may appear elsewhere on the label in conjunction with the FDA-required statements provided in B.3.4.

When required, the following additional information is also allowed to be included in this panel: the letters RQ (49 CFR 172.324(b) for a hazardous substance defined by 49 CFR 171.8 and/or the words INHALATION HAZARD (Column 7, Special Provisions of Table 172.101) [3].

A.3 Precautionary information

CGA's marking system, illustrated in Figure A-4, provides for additional information on cylinders such as the name of the supplier, precautions to be observed in the handling, storage, and use of the cylinder and/or its contents, and other information of value to the user. CGA's marking system allows information for medical or industrial use to be included as required by other regulatory bodies. It allows this additional information to appear above, beside, or below the basic marking as long as it does not interfere with the recognition of the basic marking.

A.4 DOT/TC label dimensions and modifications

The diamond figure in the basic marking shall measure at least 30 mm (1.25 in) on each side and the corners shall have an included angle of 90 degrees. The pictorial symbol, hazard class number, and color of the diamond shall be the same as the comparable DOT label described in 49 CFR 172.407 through 172.450 or in the TC regulations. The hazard class number should be not less than 5 mm (0.1875 in) in height. The pictorial symbol shall be proportional in size to that shown in the referenced section. In the United States, the hazard class words (for example: flammable gas) are allowed to be included in the diamond in letters not less than 3.175 mm (0.125 in) in height.

In Canada, hazard class words (for example, nonflammable gas) are not permitted on labels except for shipments originating from the United States under a reciprocity agreement.

For shipment of oxygen originating in the United States, the oxidizer diamond is allowed to be modified and used in place of the nonflammable gas and oxidizer labels. The oxidizer diamond shall be modified by replacing the word OXIDIZER and the hazard class number 5.1 with the word OXYGEN and the hazard class number 2 in accordance with 49 CFR 172.405(b) (see Figure A-5) [3].

For shipment of oxygen originating in Canada, the oxidizing gas label as described in the TC regulations shall be used.

In the United States, Ammonia, Anhydrous may be labeled as a nonflammable gas with the inhalation hazard marking for domestic transport only (see Figure A-5). When shipped internationally, Ammonia, Anhydrous shall display the toxic gas and corrosive label.

A.5 Left panel

The panel to the left of the diamond shall be white and shall be imprinted with the DOT/TC proper shipping name and the UN identification number of the contained gas in black characters. The characters of the shipping name shall be no less than 5 mm (0.1875 in) in height. The UN identification number shall be:

- 12 mm (0.47 in) in height for containers greater than 60 L (132 lb) water capacity;
- No less than 6 mm (0.2 in) in height for containers greater than 5 L (11 lb) to less than or equal to 60 L (132 lb) water capacity; or
- Marked in a size appropriate for the package for containers less than or equal to 5 L (11 lb) water capacity.

The panel shall measure not less than 25 mm (1 in) from top to bottom but is allowed to vary in length to accommodate the DOT/TC proper shipping name.

Where required, the letters RQ and/or the words INHALATION HAZARD shall be printed in letters not less than 2 mm (0.0625 in) in height.

A.6 N.O.S. mixtures

For gas mixtures classified as N.O.S., the technical names of at least two components that most predominantly contribute to the hazards of the mixture shall appear in parenthesis in association with the proper shipping name. The percentages of the components may be included.

A.7 Additional requirement

The basic marking shall be located (a) when space permits, on the shoulder of the cylinder, but not covering the current test date, requalification date, or any other required permanent markings, or (b) on the side of the cylinder at a point approximately two thirds of the distance from the cylinder bottom to the top of the valve or cap.

The complete CGA marking system may be of any size or shape suitable for application to the cylinder on which it is to be used, subject only to the restriction that the basic marking shall occupy a position of prominence.

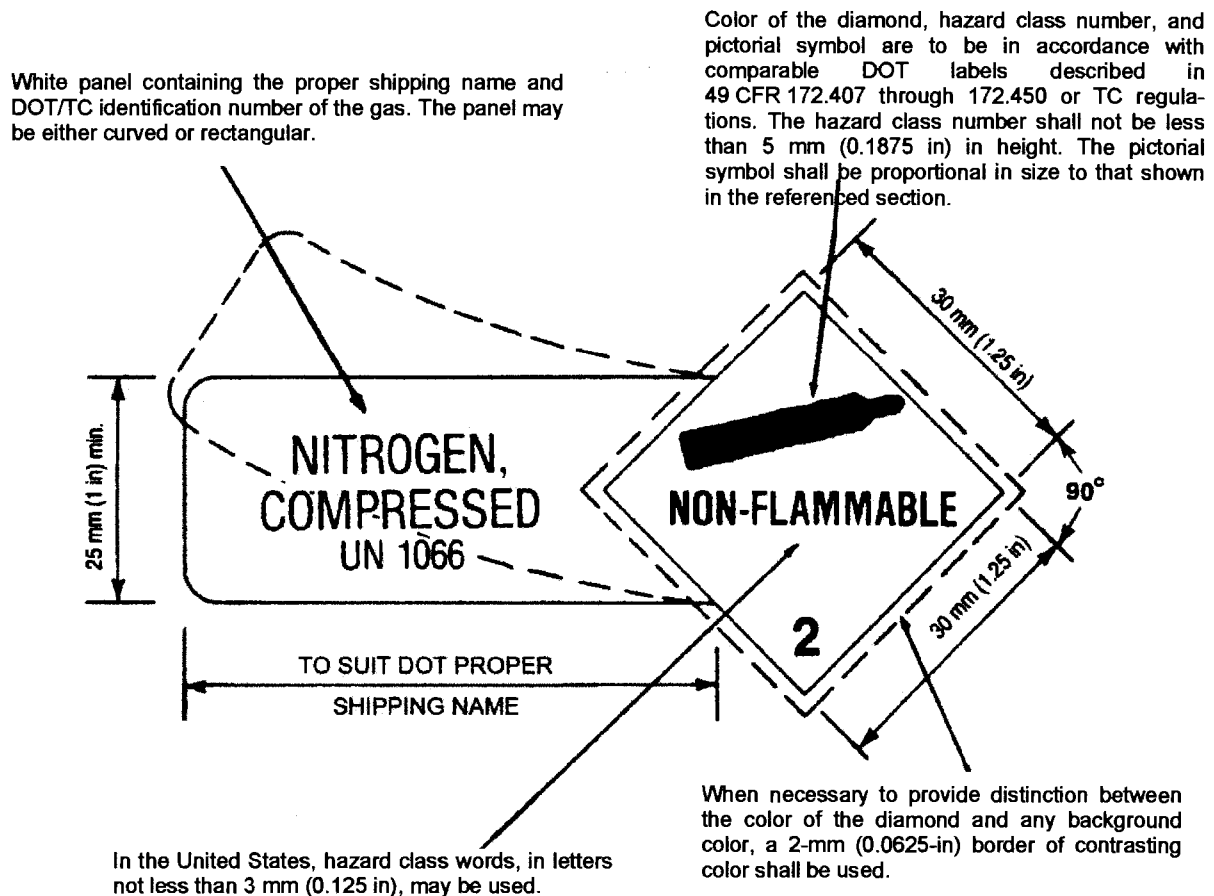
The complete CGA marking system may have as a background color any color that suits the user with the exception that the panel to the left of the diamond shall be white and there shall be a contrast between the background color and the color that is required for the diamond in the basic marking. When an identical or similar background color is desirable, this contrast may be accomplished by providing a border of contrasting color to separate the basic marking from the background. A similar border is required where the basic marking is to be applied to a noncontrasting surface.

The basic marking and/or CGA's marking system shall be firmly affixed to the container and shall be of materials that are durable under conditions incident to transportation, storage, and use and shall be maintained in legible condition.

The basic marking and/or CGA's marking system shall remain affixed to the cylinder, full or empty, as long as it remains in the same gas service. The basic marking provides identification of the hazardous material contained in a filled cylinder. The information is of equal value to the handlers of so-called empty cylinders, as it provides identification of any residual hazardous material that could be present in the cylinder. The removal or replacement of the basic marking shall, therefore, be performed only by, or at the direction of, the supplier responsible for filling the cylinder.

A.8 Illustrative examples

These illustrations use the style of hazard labels (square-on-point) required by DOT regulations. Except in the case of a few specifically named toxic gases, TC regulations in Canada require a pictorial label without words.

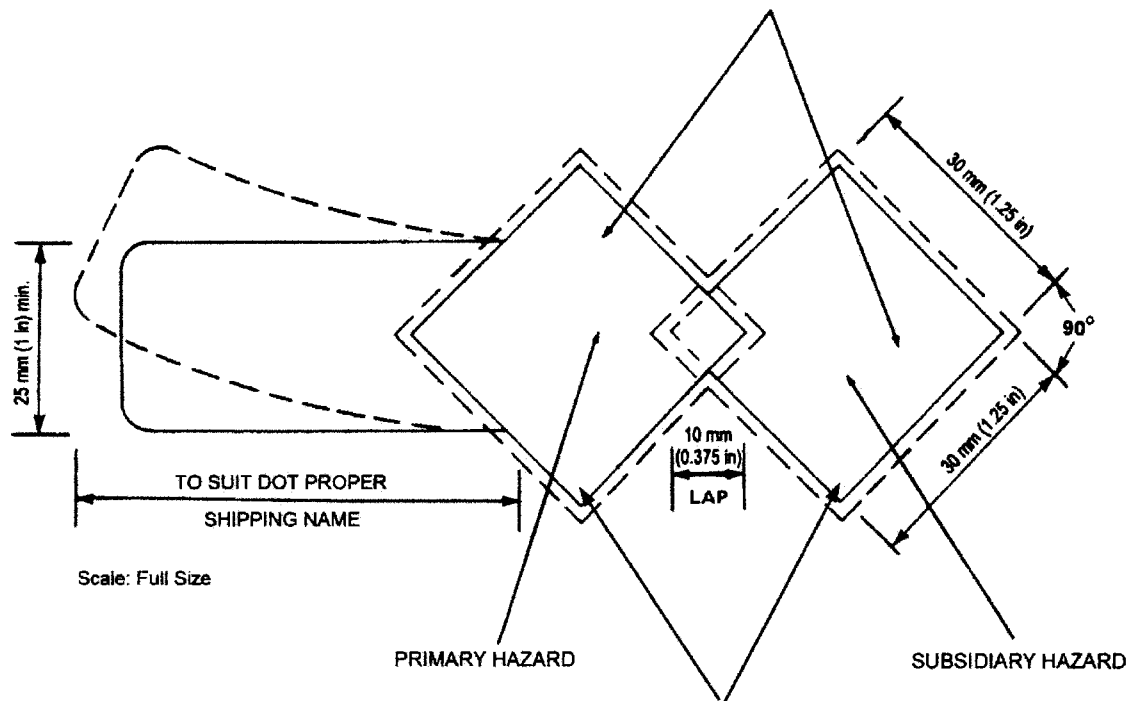


NOTE—The word GAS may be included in the 30-mm (1.25-in) diamond of the basic marking.

Figure A-1—Basic markings
 (not to scale)

The basic marking in Figure A-2 illustrates an example when an additional diamond is added to denote the subsidiary hazard when required by 49 CFR 172.101 or TC regulations [3, 4]. The primary hazard diamond overlaps the subsidiary hazard.

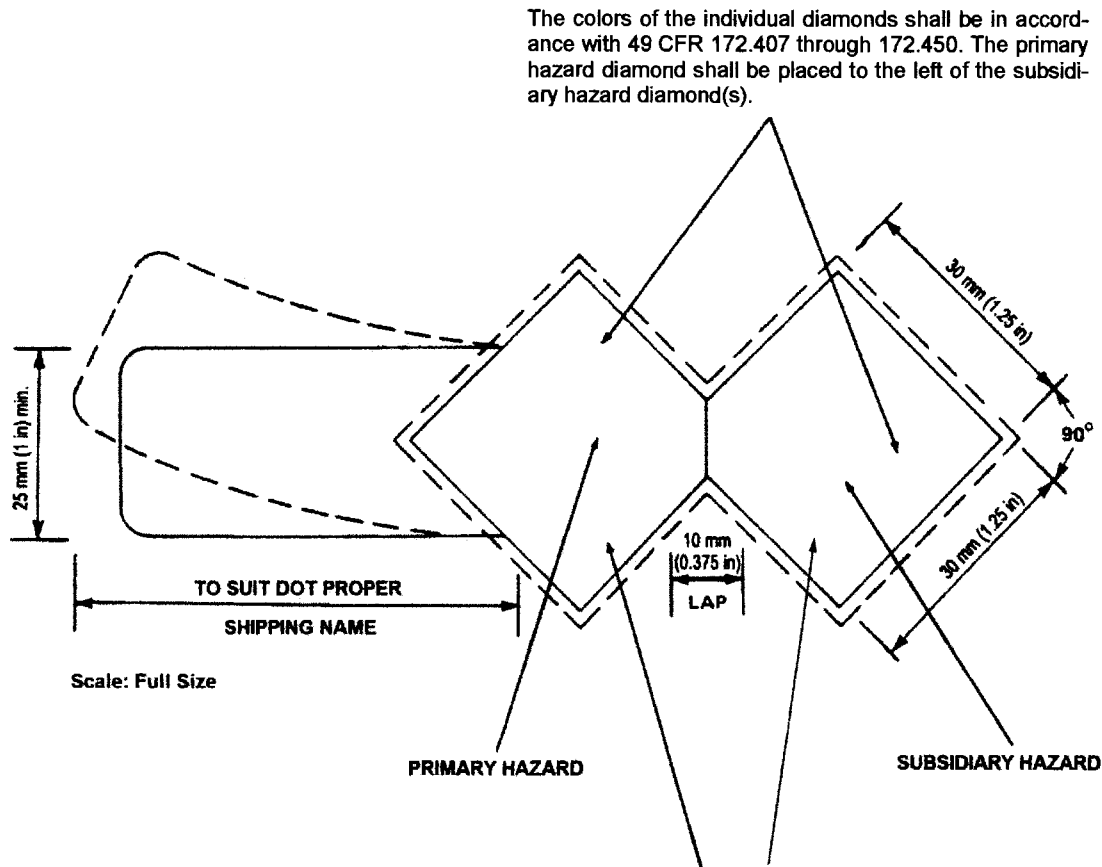
The colors of the individual diamonds shall be in accordance with 49 CFR 172.407 through 172.450 or TC regulations. The primary hazard diamond shall be placed to the left of the subsidiary hazard diamond(s).



The hazard class number shall appear in both the primary and subsidiary hazard diamond symbols.

Figure A-2—Basic markings for multiple hazard diamonds (overlapped)

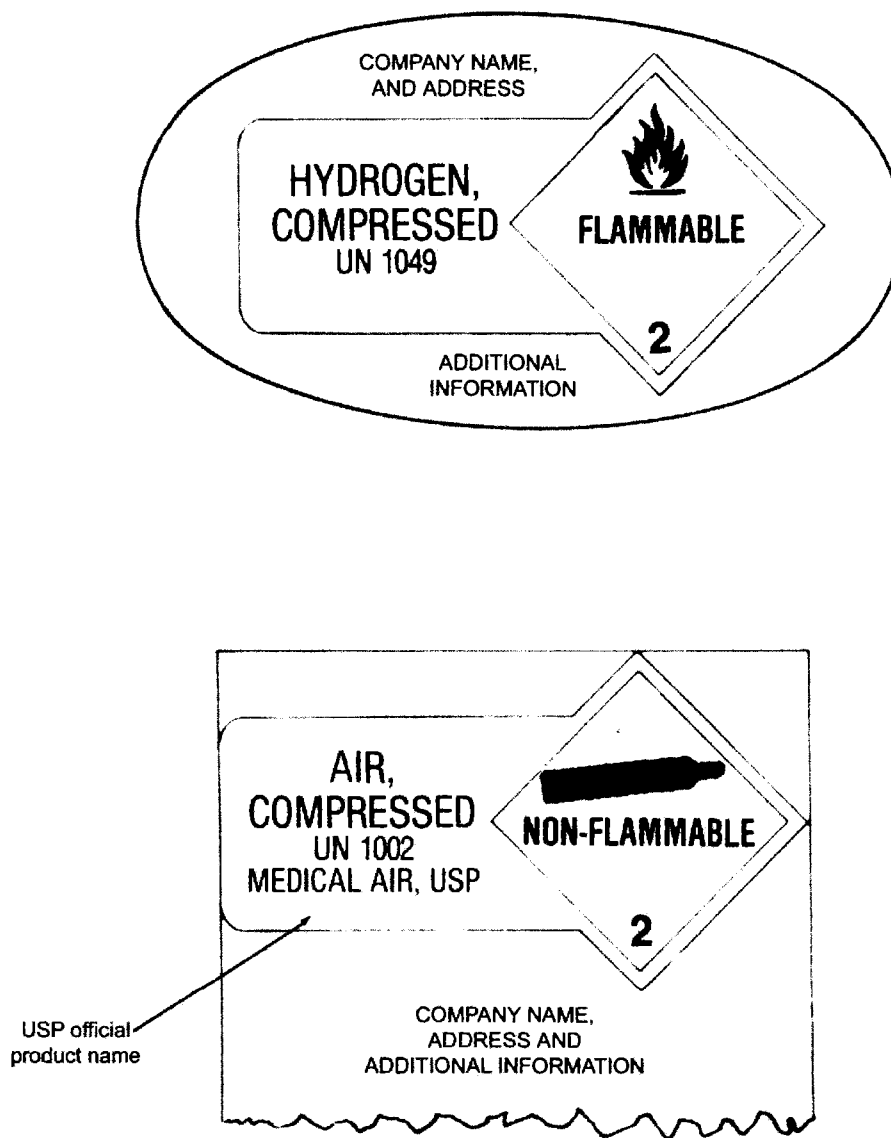
The basic marking in Figure A-3 illustrates an example when an additional diamond is added to denote the subsidiary hazard when required by 49 CFR 172.101 [3]. The primary and subsidiary hazard diamonds are truncated with the primary hazard diamond always on the left.



The hazard class number shall appear in both the primary and subsidiary hazard diamond symbols.

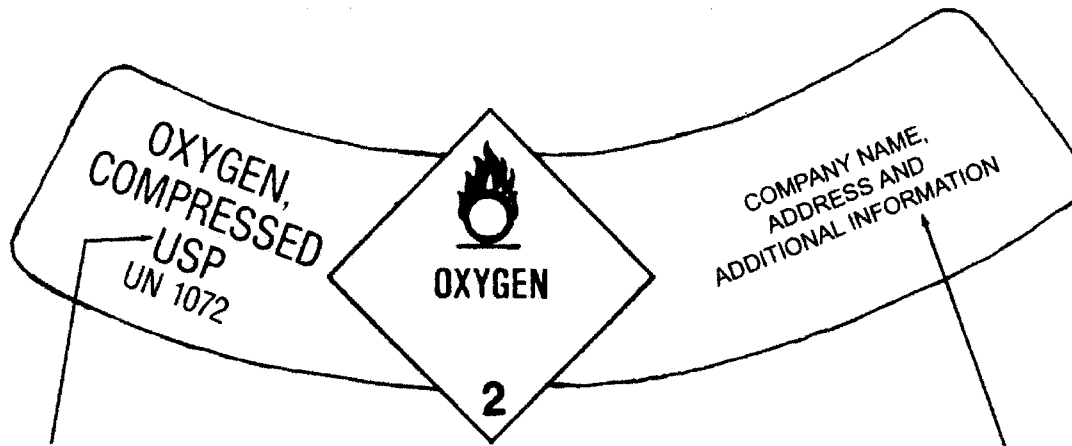
NOTE—For shipments within the United States or to Canada that originate in the United States, truncating of the diamonds is permitted.

Figure A-3—Basic markings for multiple hazard diamonds (truncated)



NOTE—When required by FDA or HPFBI, the official product name including the USP/NF designation is allowed to appear directly above, below, or beside the proper shipping name in the panel or elsewhere on the label.

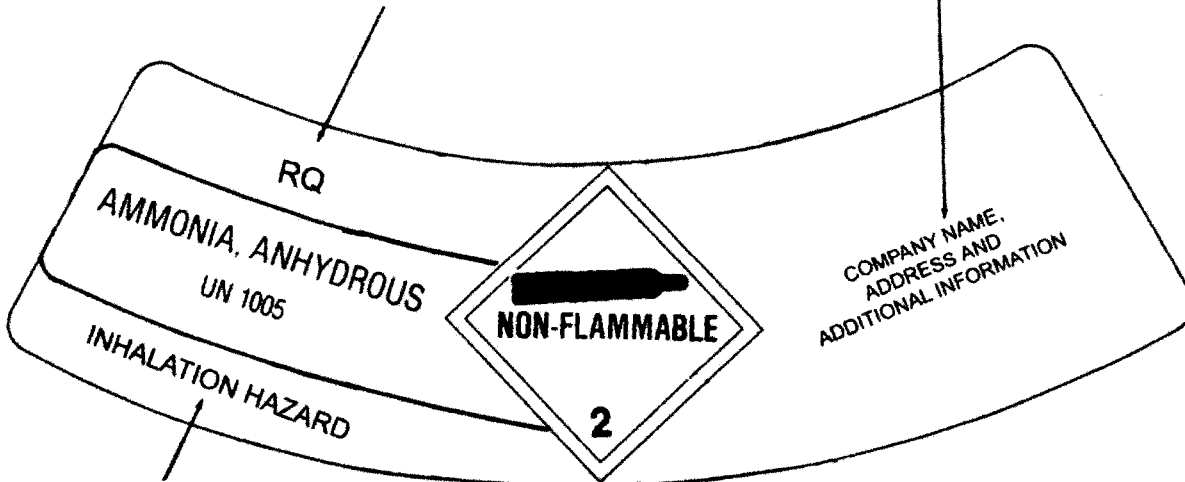
Figure A-4—Examples of CGA marking system
(not to scale)



When the USP/NF markings are required by FDA or HPFBI, they are allowed to be displayed in the left panel.

This portion of the label may be used to display the additional information required by FDA, OSHA, or HPFBI.

In the United States, if RQ is required, it shall be printed in association with the proper shipping name in letters not less than 2 mm (0.0625 in) in height. This information may appear in the panel or elsewhere in the CGA marking system.



In the United States, the words INHALATION HAZARD shall be printed in association with the proper shipping name and be at least 2 mm (0.0625 in) in height. This information may appear in the panel or elsewhere in the CGA marking system.

Figure A-5—Examples of CGA marking system for U.S. domestic shipment of oxygen and ammonia as described in A.4 (not to scale)

Appendix B—CGA labeling guide for compressed medical gases classified as drugs (Normative)

This appendix was revised to be consistent with the labeling requirements of Title 21 of the U.S. *Code of Federal Regulations* (21 CFR) Part 201 and current industry practices as they apply to the labeling of those compressed medical gases classified as drugs [9].

The information in this guide is intended as an aid in complying with the applicable FDA regulations for the labeling of medical gases classified as drugs. This guide contains what is considered to be the minimum requirements for medical gas labels and might not contain all language necessary to comply with FDA regulations. It is the responsibility of the gas supplier to assure that the labels and markings comply with all applicable government regulations (DOT, EPA, OSHA, TC, etc.). This guide should be used in conjunction with other applicable labeling and marking information contained in this publication, specifically, Appendix A and applicable illustrative labels in Section 9.

The phrases presented as material handling warnings and precautions, (i.e., not the Warning statement that begins with “Administration of ...”) in the medical gas mixtures illustrative labels in this appendix are directed to the persons who are handling or administering the gas and not the person to whom the gas may ultimately be administered.

Unless an asterisk notes an exception, the GHS and CGA phrases shown on the illustrative labels in this appendix are required.

B.1 CGA definition of terms

Manufacturer—Any person or firm who produces, fills, repackages (transfills), or relabels medical drug gas cylinders.

Distributor—Any person or firm who markets filled medical drug gas cylinders and who has not performed any manufacturing steps such as filling, repackaging, or relabeling.

B.2 General requirements

All medical drug gas labels shall bear the:

- Name and address of the manufacturer or distributor. Where the medical gas distributor’s name appears on the label, the distributor’s name shall be qualified by one of the following phrases:
 - “Manufactured for (name)”
 - “Distributed by (name)”
 - “Manufactured by (name) for (name)”
 - “Manufactured for (name) by (name)”
 - “Distributor: (name)” or
 - “Marketed by (name)”;

NOTE—If cylinders are owned by one company but filled by another company, FDA permits the use of a small ownership or possession sticker in addition to the drug product label (see Figure B-1).

- Official product name (for single-component gases);
- Statement of ingredients (for gas mixtures);
- Lot number; and
- Net contents, in appropriate units of measure as follows:

- If the medical gas is in a gaseous state in a high pressure final use container, it shall be expressed in liters or cubic feet qualified by the statement "at 70 °F and ## psi"
- If the medical gas is in a liquefied compressed gas state in a high pressure final use container it shall be expressed in gaseous liters or by an appropriate net weight statement
- If the medical gas is in a liquefied state in a portable cryogenic final use container it shall be expressed in gaseous liters, liquid liters (if identified as a liquid measure), gallons, or by an appropriate net weight statement
- If the medical gas is in a refrigerated liquid or high pressure tube transport (i.e., non-final use container), labeling for net quantity of contents is not required or
- If the medical gas is in a large non-portable cryogenic storage container or high pressure storage bank (i.e., non-final use container that supplies product via a pipeline), labeling for net quantity of contents is not required.

An expiration date for drugs is required by 21 CFR; however, FDA has indicated that they do not enforce the requirement for medical gases unless it is specified by a firm's standard operating procedures (SOP) [9]. If specified by the firm's SOP, FDA requires that appropriate stability test data to support the expiration date be maintained.

NOTE—The lot number, net contents, and/or expiration date (if used) can appear on a separate sticker instead of on the main product label. Figure B-2 provides an example of a separate sticker containing supplementary information.

The small ownership sticker shall only identify the cylinder owner (name, address, and/or phone number) and shall contain the words "property of" or "owned by". The sticker shall be placed so it cannot be confused with the product label. The sticker should not contain language that can be confused with language on the product label.

If a separate sticker is used for this information, it shall be applied in close proximity to the main product label.

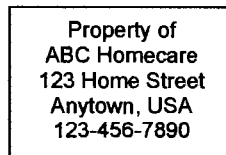


Figure B-1—Example of a small ownership sticker

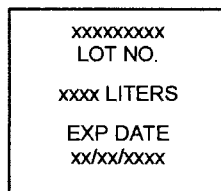


Figure B-2—Example of a separate sticker containing supplementary information

B.3 Specific required statements

The following FDA-required statements should be used in conjunction with other applicable labeling and marking information contained in this publication, specifically, Appendix A and applicable illustrative labels in Section 9 for pure gases.

B.3.1 Gaseous and Liquid Oxygen

USP

WARNING: For emergency use only when administered by properly trained personnel for oxygen deficiency and resuscitation. For all other medical applications, **Rx only**.

Uninterrupted use of high concentrations of oxygen over a long duration, without monitoring its effect on oxygen content of arterial blood, may be harmful. Do not attempt to use on patients who have stopped breathing unless used in conjunction with resuscitative equipment.

Produced by Air Liquefaction ¹

¹ Labels shall indicate if the oxygen was produced by the air liquefaction process. Oxygen produced by the air liquefaction process is exempt from the requirements for the USP tests for carbon monoxide and carbon dioxide.

NOTE—Individual states may have state-specific labeling requirements; for example, one state requires the following additional statements on oxygen labels:

- Keep out of reach of children; and
- Federal law requires that this container be refilled with oxygen USP only by establishments registered as a drug manufacturer in accordance with the Federal *Food, Drug, and Cosmetic Act* [16].

NOTE—If medical oxygen is provided as a cryogenic liquid in a cryogenic final use container, e.g., liquid oxygen home unit, that is classified as a medical device, the warning statements above are not required provided the device label of the container provides adequate directions for use in accordance with the device approval and contains the phrase "Rx only."

B.3.2 Carbon Dioxide, Helium, Nitrous Oxide

USP

Rx only

WARNING: Administration of (name of gas) may be hazardous or contraindicated. For use only by or under the supervision of a licensed practitioner who is experienced in the use and administration of (name of gas) and is familiar with the indications, effects, dosages, methods, and frequency and duration of administration, and with the hazards, contraindications and side effects, and the precautions to be taken.

B.3.3 Gaseous and Liquid Nitrogen

NF

Rx only

WARNING: Administration of Nitrogen may be hazardous or contraindicated. For use only by or under the supervision of a licensed practitioner who is experienced in the use and administration of Nitrogen and is familiar with the indications, effects, dosages, methods, and frequency and duration of administration, and with the hazards, contraindications and side effects, and the precautions to be taken.

NOTE—Open-topped dewars filled from a liquid nitrogen NF supply do not require drug or device product labeling; however, they should be identified with the word "Nitrogen."

B.3.4 Medical Air

USP

WARNING: For breathing support when used by properly trained personnel. For medical applications, **Rx only**.

Administration of Medical Air may be hazardous or contraindicated. For use only by or under the supervision of a licensed practitioner who is experienced in the use and administration of Medical Air and is familiar with the indications, effects, dosages, methods, and frequency and duration of administration, and with the hazards, contraindications and side effects, and the precautions to be taken.

*Mixture of oxygen USP and nitrogen NF.

* The statement "Mixture of oxygen USP and nitrogen NF" is only required for synthetic air mixtures. The medical air impurities tests are not required if the air is a synthetic mixture of oxygen and nitrogen, the oxygen complies to Oxygen, USP and nitrogen complies to Nitrogen, NF, and this statement appears on the label.

B.4 Oxygen/Nitrogen Medical Mixtures other than Medical Air

B.4.1 Oxygen/Nitrogen Medical Mixtures (nonflammable, nonoxidizing) where the oxygen content is less than 19.5%		
<div>_____ % Oxygen, USP ¹</div> <div>_____ % Nitrogen, NF ¹</div> <div>Rx only</div>		
WARNING:	Administration of this gas mixture may be hazardous or contraindicated. For use only by or under the supervision of a licensed practitioner who is experienced in the use and administration of gas mixtures, and is familiar with the indications, effects, dosages, methods, and frequency and duration of administration, and with the hazards, contraindications and side effects, and the precautions to be taken.	Codes
WARNING:	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.	H280 OSHA-H01
	Do not handle until all safety precautions have been read and understood. Use and store only outdoors or in a well-ventilated place. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.	P202 P271+P403 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG06 CGA-PG02 CGA-PG27
FIRST AID:	IF ACCIDENTLY INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.	CGA-MP01
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

¹ The USP or NF designation may be placed before or after the component or percentage entry. As an alternate method of stating that the mixture was prepared using USP or NF gases when applicable, the USP or NF designation after each component may be eliminated, and the statement "Gases used to prepare this mixture meet USP or NF specifications where applicable" or equivalent wording may be added to the label. Component names may appear in any order.

NOTE—If this mixture is to be used as a respiratory challenge mix, the label may indicate "FOR USE WITH RESPIRATORY CHALLENGE DIAGNOSTIC EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS".

Required symbols	
GHS pictogram(s)	Gas cylinder
Transportation label(s)	2.2 Nonflammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

B.4.2 Oxygen/Nitrogen Medical Mixtures (nonflammable, oxidizing) where the oxygen content is greater than 23.5%

_____ % Oxygen, USP¹

_____ % Nitrogen, NF¹

Rx only

WARNING: Administration of this gas mixture may be hazardous or contraindicated. For use only by or under the supervision of a licensed practitioner who is experienced in the use and administration of gas mixtures, and is familiar with the indications, effects, dosages, methods, and frequency and duration of administration, and with the hazards, contraindications and side effects, and the precautions to be taken.

Codes

DANGER: MAY CAUSE OR INTENSIFY FIRE; OXIDIZER. H270
 CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. H280

Do not handle until all safety precautions have been read and understood. P202
 Keep and store away from clothing and other combustible materials. P220
 Keep valves and fittings free from grease and oil. P244
 Use and store only outdoors or in a well-ventilated place. P271+P403
 Use a back flow preventive device in the piping. CGA-PG05
 Use only with equipment of compatible materials of construction and rated CGA-PG20+
 for cylinder pressure. CGA-PG10
 Use only with equipment cleaned for oxygen service. CGA-PG22
 Open valve slowly. CGA-PG21
 Close valve after each use and when empty. CGA-PG06
 Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). CGA-PG02
 Read and follow the Safety Data Sheet (SDS) before use. CGA-PG27

DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording). OSHA-PG01

¹ The USP or NF designation may be placed before or after the component or percentage entry. As an alternate method of stating that the mixture was prepared using USP or NF gases when applicable, the USP or NF designation after each component may be eliminated, and the statement "Gases used to prepare this mixture meet USP or NF specifications where applicable" or equivalent wording may be added to the label. Component names may appear in any order.

Required symbols	
GHS pictogram(s)	Gas cylinder, Flame over Circle
Transportation label(s)	2.2 Nonflammable Gas, 5.1 Oxidizer
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

B.5 Oxygen/Helium Medical Mixtures

B.5.1 Oxygen/Helium Medical Mixtures (nonflammable, nonoxidizing) where the oxygen concentration is less than or equal to 23.5%		
<p>_____ % Oxygen, USP ¹</p> <p>_____ % Helium, USP ¹</p> <p style="text-align: center;">Rx only</p>		
WARNING:	Administration of this gas mixture may be hazardous or contraindicated. For use only by or under the supervision of a licensed practitioner who is experienced in the use and administration of gas mixtures, and is familiar with the indications, effects, dosages, methods, and frequency and duration of administration, and with the hazards, contraindications and side effects, and the precautions to be taken.	Codes
DANGER:	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. *MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.	H280 OSHA-H01
	Do not handle until all safety precautions have been read and understood. Use and store only outdoors or in a well-ventilated place. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.	P202 P271+P403 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG06 CGA-PG02 CGA-PG27
FIRST AID:	IF ACCIDENTLY INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.	CGA-MP01
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

¹ The USP or NF designation may be placed before or after the component or percentage entry. As an alternate method of stating that the mixture was prepared using USP or NF gases when applicable, the USP or NF designation after each component may be eliminated, and the statement "Gases used to prepare this mixture meet USP or NF specifications where applicable" or equivalent wording may be added to the label. Component names may appear in any order.

* If the mixture contains concentrations of oxygen from 19.5% up to 23.5%, this statement is not allowed to be on the label.

Required symbols	
GHS pictogram(s)	Gas cylinder
Transportation label(s)	2.2 Nonflammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

B.5.2 Oxygen/Helium Medical Mixtures (nonflammable, oxidizing) where the oxygen concentration is greater than 23.5%		
<div>_____ % Oxygen, USP ¹</div> <div>_____ % Helium, USP ¹</div> <div>Rx only</div>		
WARNING:	Administration of this gas mixture may be hazardous or contraindicated. For use only by or under the supervision of a licensed practitioner who is experienced in the use and administration of gas mixtures, and is familiar with the indications, effects, dosages, methods, and frequency and duration of administration, and with the hazards, contraindications and side effects, and the precautions to be taken.	Codes
DANGER:	MAY CAUSE OR INTENSIFY FIRE; OXIDIZER. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. Do not handle until all safety precautions have been read and understood. Keep and store away from clothing and other combustible materials. Keep valves and fittings free from grease and oil. Use and store only outdoors or in a well-ventilated place. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Use only with equipment cleaned for oxygen service. Open valve slowly. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.	H270 H280 P202 P220 P244 P271+P403 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG22 CGA-PG21 CGA-PG06 CGA-PG02 CGA-PG27
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

¹ The USP or NF designation may be placed before or after the component or percentage entry. As an alternate method of stating that the mixture was prepared using USP or NF gases when applicable, the USP or NF designation after each component may be eliminated, and the statement "Gases used to prepare this mixture meet USP or NF specifications where applicable" or equivalent wording may be added to the label. Component names may appear in any order.

Required symbols	
GHS pictogram(s)	Gas cylinder, Flame over Circle
Transportation label(s)	2.2 Nonflammable Gas, 5.1 Oxidizer
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

B.6 Oxygen/Carbon Dioxide Mixtures

B.6.1 Oxygen/Carbon Dioxide Medical Mixtures		
<p>_____ % Oxygen, USP ¹</p> <p>_____ % Carbon Dioxide, USP ¹</p> <p style="text-align: center;">Rx only</p>		
WARNING:	Administration of this gas mixture may be hazardous or contraindicated. For use only by or under the supervision of a licensed practitioner who is experienced in the use and administration of gas mixtures, and is familiar with the indications, effects, dosages, methods, and frequency and duration of administration, and with the hazards, contraindications and side effects, and the precautions to be taken.	Codes
DANGER:	<p>MAY CAUSE OR INTENSIFY FIRE; OXIDIZER.</p> <p>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.</p> <p>MAY INCREASE RESPIRATION AND HEART RATE.</p> <p>Do not handle until all safety precautions have been read and understood.</p> <p>Keep and store away from clothing and other combustible materials.</p> <p>Keep valves and fittings free from grease and oil.</p> <p>Use and store only outdoors or in a well-ventilated place.</p> <p>Use a back flow preventive device in the piping.</p> <p>Use only with equipment of compatible materials of construction and rated for cylinder pressure.</p> <p>Use only with equipment cleaned for oxygen service.</p> <p>Open valve slowly.</p> <p>Close valve after each use and when empty.</p> <p>Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).</p> <p>Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>H270</p> <p>H280</p> <p>CGA-HG03</p> <p>P202</p> <p>P220</p> <p>P244</p> <p>P271+P403</p> <p>CGA-PG05</p> <p>CGA-PG20+</p> <p>CGA-PG10</p> <p>CGA-PG22</p> <p>CGA-PG21</p> <p>CGA-PG06</p> <p>CGA-PG02</p> <p>CGA-PG27</p>
FIRST AID:	IF ACCIDENTLY INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.	CGA-MP01
DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).		OSHA-PG01

¹ The USP or NF designation may be placed before or after the component or percentage entry. As an alternate method of stating that the mixture was prepared using USP or NF gases when applicable, the USP or NF designation after each component may be eliminated, and the statement "Gases used to prepare this mixture meet USP or NF specifications where applicable" or equivalent wording may be added to the label. Component names may appear in any order.

Required symbols	
GHS pictogram(s)	Gas cylinder, Flame over Circle
Transportation label(s)	2.2 Nonflammable Gas, 5.1 Oxidizer
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

B.7 Oxygen/Carbon Dioxide/Nitrogen Medical Mixtures

B.7.1 Oxygen/Carbon Dioxide/Nitrogen Medical Mixtures (nonflammable, nonoxidizing) where the oxygen concentration is less than or equal to 23.5%	
<p>_____ % Oxygen, USP ¹</p> <p>_____ % Carbon Dioxide, USP ¹</p> <p>_____ % Nitrogen, NF ¹</p> <p style="text-align: center;">Rx only</p>	
<p>WARNING: Administration of this gas mixture may be hazardous or contraindicated. For use only by or under the supervision of a licensed practitioner who is experienced in the use and administration of gas mixtures, and is familiar with the indications, effects, dosages, methods, and frequency and duration of administration, and with the hazards, contraindications and side effects, and the precautions to be taken.</p> <p>WARNING: CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. *MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. MAY INCREASE RESPIRATION AND HEART RATE.</p> <p>Do not handle until all safety precautions have been read and understood. Use and store only outdoors or in a well-ventilated place. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p> <p>FIRST AID: IF ACCIDENTLY INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p style="text-align: right;">Codes</p> <p>H280 OSHA-H01 CGA-HG03</p> <p>P202 P271+P403 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG06 CGA-PG02 CGA-PG27</p> <p>CGA-MP01</p> <p>OSHA-PG01</p>

¹ The USP or NF designation may be placed before or after the component or percentage entry. As an alternate method of stating that the mixture was prepared using USP or NF gases when applicable, the USP or NF designation after each component may be eliminated, and the statement "Gases used to prepare this mixture meet USP or NF specifications where applicable" or equivalent wording may be added to the label. Component names may appear in any order.

* If the mixture contains concentrations of oxygen from 19.5% up to 23.5%, this statement is not allowed to be on the label.

NOTE—If this mixture is to be used as a respiratory challenge mix, the label may indicate "FOR USE WITH RESPIRATORY CHALLENGE DIAGNOSTIC EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS".

Required symbols	
GHS pictogram(s)	Gas cylinder
Transportation label(s)	2.2 Nonflammable Gas
NOTE— Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

B.7.2 Oxygen/Carbon Dioxide/Nitrogen Medical Mixtures (nonflammable, oxidizing) where the oxygen concentration is greater than 23.5%		
<p>_____ % Oxygen, USP ¹</p> <p>_____ % Carbon Dioxide, USP ¹</p> <p>_____ % Nitrogen, NF ¹</p> <p style="text-align: center;">Rx only</p>		
WARNING:	Administration of this gas mixture may be hazardous or contraindicated. For use only by or under the supervision of a licensed practitioner who is experienced in the use and administration of gas mixtures, and is familiar with the indications, effects, dosages, methods, and frequency and duration of administration, and with the hazards, contraindications and side effects, and the precautions to be taken.	Codes
DANGER:	<p>MAY CAUSE OR INTENSIFY FIRE; OXIDIZER.</p> <p>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.</p> <p>MAY INCREASE RESPIRATION AND HEART RATE.</p> <p>Do not handle until all safety precautions have been read and understood.</p> <p>Keep and store away from clothing and other combustible materials.</p> <p>Keep valves and fittings free from grease and oil.</p> <p>Use and store only outdoors or in a well-ventilated place.</p> <p>Use a back flow preventive device in the piping.</p> <p>Use only with equipment of compatible materials of construction and rated for cylinder pressure.</p> <p>Use only with equipment cleaned for oxygen service.</p> <p>Open valve slowly.</p> <p>Close valve after each use and when empty.</p> <p>Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).</p> <p>Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>H270</p> <p>H280</p> <p>CGA-HG03</p> <p>P202</p> <p>P220</p> <p>P244</p> <p>P271+P403</p> <p>CGA-PG05</p> <p>CGA-PG20+</p> <p>CGA-PG10</p> <p>CGA-PG22</p> <p>CGA-PG21</p> <p>CGA-PG06</p> <p>CGA-PG02</p> <p>CGA-PG27</p>
FIRST AID:	<p>IF ACCIDENTLY INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>CGA-MP01</p> <p>OSHA-PG01</p>

¹ The USP or NF designation may be placed before or after the component or percentage entry. As an alternate method of stating that the mixture was prepared using USP or NF gases when applicable, the USP or NF designation after each component may be eliminated, and the statement "Gases used to prepare this mixture meet USP or NF specifications where applicable" or equivalent wording may be added to the label. Component names may appear in any order.

Required symbols	
GHS pictogram(s)	Gas cylinder, Flame over Circle
Transportation label(s)	2.2 Nonflammable Gas and 5.1 Oxidizer
<p>NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].</p>	

B.8 Color markings

FDA recognizes the industry practice of using a color marking system as an aid to the identification of medical gas cylinders and containers. The color marking system used by the compressed gas industry is found in CGA C-9, *Standard Color Marking of Compressed Gas Containers for Medical Use* [11].

Color marking systems are not to be used to identify the contents of any compressed gas container. The only means for identification of the content of any container of compressed gas shall be the chemical name or other commonly accepted name of the material legibly marked on the exterior of the container.

Appendix C—CGA labeling guide for compressed medical gases classified as medical devices (Normative)

This appendix was revised to be consistent with the labeling requirements of 21 CFR Part 801 and current industry practices as they apply to the labeling of certain compressed gases classified as medical devices in the United States [10].

The information in this guide is intended as an aid in complying with the applicable FDA regulations for the labeling of certain compressed gas mixtures classified as medical devices. This guide contains what is considered to be the minimum requirements for medical device labeling and might not contain all language necessary to comply with current FDA regulations. It is the responsibility of the gas supplier to assure that labels and markings comply with all applicable government regulations (DOT, EPA, OSHA, Transport Canada, etc.). This guide should be used in conjunction with other applicable labeling and marking information contained in this publication.

The phrases presented as material handling warnings and precautions, (i.e., not the Warning statement that begins with “Administration of ...”) in the illustrative labels in section C.3.1 of this appendix are directed to the persons who are handling or administering the gas and not the person to whom the gas may ultimately be administered.

Unless an asterisk notes an exception, the GHS and CGA phrases shown on the illustrative labels in this appendix are required.

C.1 CGA definition of terms

Manufacturer—Any person or firm who produces, fills, repackages (transfills), or relabels medical device gas cylinders.

Distributor—Any person or firm who markets filled medical device gas cylinders and who has not performed any manufacturing steps such as filling, repackaging, or relabeling.

C.2 General requirements

All compressed gas medical device labels shall bear the following information:

- Name and address of manufacturer or distributor. Where the medical gas is not manufactured by the person or firm appearing on the label, as is the case with a distributor, the name identified on the label shall be qualified by the phrase:
 - “Manufactured for (name)”
 - “Distributed by (name)” or
 - Any other wording that expresses the connection between the person or firm named on the label and the medical device gas;
- Proprietary name and established name (common or usual name), if any;
- Statement of intended use;
- Lot number;
- Statement of ingredients (including % mol/mol);
- Adequate directions for use (cylinder handling and storage); and
- Net contents, in units of measure as follows:
 - If the medical gas is in a gaseous state in a high pressure final use container, it shall be expressed in liters or cubic feet qualified by the statement “at 70 °F and X psi”

- If the medical gas is in a liquefied compressed gas state in a high pressure final use container it shall be expressed in gaseous liters or by an appropriate net weight statement
- If the medical gas is in a liquefied state in a portable cryogenic final use container shall be expressed in gaseous liters, liquid liters (if identified as a liquid measure), gallons, or by an appropriate net weight statement or
- If the medical gas is in a refrigerated liquid or high pressure tube transport (i.e., non-final use container), labeling for net quantity of contents is not required.

The lot number and/or net contents may appear on the main product label or on a separate sticker instead of on the main product label. If a separate sticker is used for this information, it shall be applied in close proximity to the required main product label.

Open-topped dewars filled from a liquid nitrogen NF supply do not require drug or device product labeling but should be identified with the word "Nitrogen."

C.3 Minimum required statements

C.3.1 Lung Diffusion Mixtures

C.3.1.1 Lung Diffusion Mixture (nonflammable, nonoxidizing) where the oxygen concentration is less than or equal to 23.5%		
_____ % mol/mol ¹ carbon monoxide ² _____ % mol/mol (name of gas) USP or NF when applicable ³ _____ % mol/mol (name of gas) ³ _____ % mol/mol (name of gas) ³ _____ % mol/mol (name of gas) ³		
FOR USE WITH LUNG DIFFUSION DIAGNOSTIC EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. NOT FOR DRUG USE.		
WARNING:	Administration of lung diffusion mixtures may be hazardous or contraindicated. For use only by or under the supervision of a licensed practitioner who is experienced in the use and administration of lung diffusion mixtures and is familiar with the indications, effects, dosages, methods, and frequency and duration of administration, and with the hazards, contraindications and side effects, and the precautions to be taken.	Codes
DANGER: ²	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. ² CAUSES DAMAGE TO CENTRAL NERVOUS SYSTEM THROUGH PROLONGED OR REPEATED EXPOSURE. ² *MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. Do not handle until all safety precautions have been read and understood. Use and store only outdoors or in a well-ventilated place. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.	H280 H360 H372 OSHA-H01 P202 P271+P403 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG06 CGA-PG02 CGA-PG27
FIRST AID:	IF ACCIDENTLY INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.	CGA-MP01
DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).		OSHA-PG01

¹ As an alternate method the statement "All concentrations are expressed as % mol/mol" or equivalent wording may be used instead of using % mol/mol after each component.

² Some lung diffusion mixtures contain less than 1% carbon monoxide. In these cases, the following changes to this illustrative label are required:

- If the mixture contains less than 1% carbon monoxide, the GHS hazard statement H372 shall not appear;
- If the mixture contains less than 0.1 % carbon monoxide, the "DANGER" signal word shall be changed to "WARNING" and the GHS hazard statement H360 and the GHS pictogram "Health Hazard" shall not appear; or
- If the mixture does not contain carbon monoxide, the % mol/mol statement shall not appear.

If carbon monoxide is not included in the mixture, these statements and the GHS pictogram "Health Hazard" shall not be used and the associated "DANGER" signal word shall be changed to "WARNING".

³ As an alternate method of stating that the mixture was prepared using USP or NF gases when applicable, the USP or NF designation after each component may be eliminated, and the statement "Gases used to prepare this mixture meet USP or NF specifications where applicable" or equivalent wording may be added to the label.

* If the mixture contains concentrations of oxygen from 19.5% up to and including 23.5%, this statement is not allowed to be on the label.

Required symbols	
GHS pictogram(s)	Gas cylinder, Health Hazard ²
Transportation label(s)	2.2 Nonflammable Gas
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

C.3.1.2 Lung Diffusion Mixture (nonflammable, oxidizing) where the oxygen concentration is greater than 23.5%		
<p>_____ % mol/mol¹ carbon monoxide²</p> <p>_____ % mol/mol (name of gas) USP or NF when applicable³</p> <p>_____ % mol/mol (name of gas)³</p> <p>_____ % mol/mol (name of gas)³</p> <p>_____ % mol/mol (name of gas)</p> <p>FOR USE WITH LUNG DIFFUSION DIAGNOSTIC EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.</p> <p>NOT FOR DRUG USE.</p>		
WARNING:	Administration of lung diffusion mixtures may be hazardous or contraindicated. For use only by or under the supervision of a licensed practitioner who is experienced in the use and administration of lung diffusion mixtures and is familiar with the indications, effects, dosages, methods, and frequency and duration of administration, and with the hazards, contraindications and side effects, and the precautions to be taken.	Codes
*DANGER:	<p>MAY CAUSE OR INTENSIFY FIRE; OXIDIZER. H270</p> <p>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. H280</p> <p>*MAY DAMAGE FERTILITY OR THE UNBORN CHILD.² H360</p> <p>**CAUSES DAMAGE TO CENTRAL NERVOUS SYSTEM THROUGH PROLONGED OR REPEATED EXPOSURE.² H372</p> <p>Do not handle until all safety precautions have been read and understood. P202</p> <p>Keep valves and fittings free from grease and oil. P244</p> <p>Use and store only outdoors or in a well-ventilated place. P271+P403</p> <p>Use a back flow preventive device in the piping. CGA-PG05</p> <p>Use only with equipment of compatible materials of construction and rated for cylinder pressure. CGA-PG20+</p> <p>Use only with equipment cleaned for oxygen service. CGA-PG10</p> <p>Open valve slowly. CGA-PG22</p> <p>Close valve after each use and when empty. CGA-PG21</p> <p>Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). CGA-PG06</p> <p>Read and follow the Safety Data Sheet (SDS) before use. CGA-PG02</p> <p>CGA-PG27</p>	
FIRST AID:	IF ACCIDENTLY INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.	CGA-MP01
DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).		OSHA-PG01

¹ As an alternate method the statement "All concentrations are expressed as % mol/mol" or equivalent wording may be used instead of using % mol/mol after each component.

² Some lung diffusion mixtures do not contain carbon monoxide. If carbon monoxide is not included in the mixture, these statements shall not be used. If carbon monoxide is included in the mixture in concentrations equal to or greater than 0.10%, additional hazard and precautionary statements and the GHS pictogram "Health Hazard" are required.

³ As an alternate method of stating that the mixture was prepared using USP or NF gases when applicable, the USP or NF designation after each component may be eliminated, and the statement "Gases used to prepare this mixture meet USP or NF specifications where applicable" or equivalent wording may be added to the label.

* If the mixture contains concentrations of carbon monoxide less than 0.1%, this statement and the GHS pictogram "Health Hazard" shall not appear on the label and the associated "DANGER" shall be changed to "WARNING".

** If the mixture contains concentrations of carbon monoxide greater than or equal to 1%, this statement is required on the label.

Required symbols	
GHS pictogram(s)	Gas cylinder and Flame over Circle, Health Hazard ²
Transportation label(s)	2.2 Nonflammable Gas and 5.1 Oxidizer
NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].	

C.3.2 Blood Gas Mixtures

C.3.2.1 Blood Gas Mixture (nonflammable, nonoxidizing) where the oxygen concentration is less than or equal to 23.5%		
<p>_____ % mol/mol¹ (name of gas) _____ % mol/mol (name of gas) _____ % mol/mol (name of gas)</p> <p>FOR CALIBRATION OF BLOOD GAS ANALYZERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.</p> <p>NOT FOR DRUG USE.</p> <p>NOT FOR INHALATION.</p>		
WARNING:	<p>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. *MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. **MAY INCREASE RESPIRATION AND HEART RATE.</p> <p>Do not handle until all safety precautions have been read and understood. **Avoid breathing gas. Use and store only outdoors or in a well-ventilated place. Use a back flow preventive device in the piping. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H280 OSHA-H01 CGA-HG03</p> <p>P202 P261 P271+P403 CGA-PG05 CGA-PG20+ CGA-PG10 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P313</p> <p>OSHA-PG01</p>

¹ As an alternate method the statement "All concentrations are expressed as % mol/mol" or equivalent wording may be used instead of using % mol/mol after each component.

* If the mixture contains concentrations of oxygen from 19.5% up to 23.5%, this statement shall not appear.

** These statements are only required when the mixture contains carbon dioxide.

Required symbols	
GHS pictogram(s)	Gas cylinder
Transportation label(s)	2.2 Nonflammable Gas
<p>NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].</p>	

C.3.2.2 Blood Gas Mixture (nonflammable, oxidizing) where the oxygen concentration is greater than 23.5%

_____ % mol/mol¹ (name of gas)
 _____ % mol/mol (name of gas)
 _____ % mol/mol (name of gas)

FOR CALIBRATION OF BLOOD GAS ANALYZERS IN ACCORDANCE WITH
 MANUFACTURER'S INSTRUCTIONS.

NOT FOR DRUG USE.

NOT FOR INHALATION.

DANGER:	MAY CAUSE OR INTENSIFY FIRE; OXIDIZER.	Codes H270
	CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. *MAY INCREASE RESPIRATION AND HEART RATE.	H280 CGA-HG03
	Do not handle until all safety precautions have been read and understood.	P202
	Keep valves and fittings free from grease and oil.	P244
	*Avoid breathing gas.	P261
	Use and store only outdoors or in a well-ventilated place.	P271+P403
	Use a back flow preventive device in the piping.	CGA-PG05
	Use only with equipment of compatible materials of construction and rated for cylinder pressure.	CGA-PG20+ CGA-PG10
	Use only with equipment cleaned for oxygen service.	CGA-PG22
	Open valve slowly.	CGA-PG21
	Close valve after each use and when empty.	CGA-PG06
	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	CGA-PG02
	Read and follow the Safety Data Sheet (SDS) before use.	CGA-PG27
FIRST AID:	IF INHALED: Remove person to fresh air and keep comfortable for breath- ing. Get medical advice/attention.	P304, P340, P313
	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	OSHA-PG01

¹ As an alternate method the statement "All concentrations are expressed as % mol/mol" or equivalent wording may be used instead of using % mol/mol after each component.

* These statements are only required when the mixture contains carbon dioxide.

Required symbols

GHS pictogram(s)	Gas cylinder, Flame over Circle
Transportation label(s)	2.2 Nonflammable Gas, 5.1 Oxidizer

NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].

C.3.3 Calibration Gas Mixtures

Medical gas calibration gas mixtures can fall into three categories based on the number and concentration of their components:

- nonflammable, nonoxidizing where the oxygen concentration is less than or equal to 23.5%, including mixtures that do not contain oxygen;
- nonflammable, oxidizing where the oxygen concentration is greater than 23.5%; or
- flammable.

Because calibration gas mixtures can contain a many different components at various concentrations, illustrative labels for every possible mixture cannot be provided. In addition to the information shown below, the label for calibration gas mixtures shall include hazard and precautionary phrases as determined by using Appendix E.

<div style="margin-bottom: 5px;">_____ % mol/mol¹ (name of gas)</div> <div style="margin-bottom: 5px;">_____ % mol/mol (name of gas)</div> <div style="margin-bottom: 5px;">_____ % mol/mol (name of gas)</div> <div style="margin-top: 10px;"> FOR CALIBRATION OF MEDICAL ANALYZERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. </div> <div style="margin-top: 5px;"> NOT FOR DRUG USE. </div> <div style="margin-top: 5px;"> NOT FOR INHALATION. </div>

¹ As an alternate method the statement "All concentrations are expressed as % mol/mol" or equivalent wording may be used instead of using % mol/mol after each component.

C.3.4 Laser Gases and Laser Gas Mixtures (containing components of noble gases, nitrogen, and/or carbon dioxide)		
<p>_____ % mol/mol¹ (name of gas) _____ % mol/mol (name of gas) _____ % mol/mol (name of gas)</p> <p>FOR USE WITH MEDICAL LASER EQUIPMENT. USE IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S INSTRUCTIONS.</p> <p>NOT FOR DRUG USE.</p> <p>NOT FOR INHALATION.</p> <p>FOR USE ONLY BY OR UNDER THE SUPERVISION OF A LICENSED PRACTITIONER WHO IS EXPERIENCED IN THE USE OF LASER EQUIPMENT.</p>		
WARNING:	<p>CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION. *MAY INCREASE RESPIRATION AND HEART RATE.</p> <p>Do not handle until all safety precautions have been read and understood. *Avoid breathing gas. Use and store only outdoors or in a well-ventilated place. Use a back flow preventive device in the piping. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty. Protect from sunlight when ambient temperature exceeds 52 °C (125 °F). Read and follow the Safety Data Sheet (SDS) before use.</p>	<p>Codes H280 OSHA-H01 CGA-HG03</p> <p>P202 P261 P271+P403 CGA-PG05 CGA-PG10 CGA-PG06 CGA-PG02 CGA-PG27</p>
FIRST AID:	<p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.</p> <p>DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).</p>	<p>P304, P340, P313</p> <p>OSHA-PG01</p>

NOTE—If the laser gas is a single component, the hazard communication information shall be consistent with the applicable illustrative label in Section 9.

¹ As an alternate method the statement "All concentrations are expressed as % mol/mol" or equivalent wording may be used instead of using % mol/mol after each component.

* These statements are only required when the mixture contains carbon dioxide.

Required symbols	
GHS pictogram(s)	Gas cylinder
Transportation label(s)	2.2 Nonflammable Gas
<p>NOTE—Where a pictogram (i.e., DOT label) required under 49 CFR 172.400 appears on a shipped container, the pictogram specified in C.4 of OSHA's Hazard Communication Standard for the same hazard shall not appear [3, 2].</p>	

C.3.5 Artificial Atmosphere Medical Gas Mixtures (both aerobic and anaerobic)

Artificial atmosphere medical gas mixtures can fall into three categories based upon the number and concentration of their components:

- nonflammable, nonoxidizing where the oxygen concentration is less than or equal to 23.5%, including mixtures that do not contain oxygen;
- nonflammable, oxidizing where the oxygen concentration is greater than 23.5%; or
- flammable.

Because artificial atmosphere medical gas mixtures can contain many different components at various concentrations, illustrative labels for every possible mixture cannot be provided. In addition to the information shown below, the label for artificial atmosphere medical gas mixtures shall include hazard and precautionary phrases as determined by using Appendix E.

_____ _____ _____	% mol/mol ¹ (name of gas) % mol/mol (name of gas) % mol/mol (name of gas)
BIOLOGICAL ATMOSPHERE MIXTURE FOR CULTURE GROWTH. FOR LABORATORY USE ONLY. NOT FOR DRUG USE. NOT FOR INHALATION.	

¹ As an alternate method the statement "All concentrations are expressed as % mol/mol" or equivalent wording may be used instead of using % mol/mol after each component.

Appendix D—Pure product classifications (Normative)

This appendix includes the GHS classifications and corresponding hazard and precautionary phrases, signal word, and GHS pictograms for the pure gases listed in this publication.

Table D-1—Asphyxiant gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Pre. statements: prevention	Pre. statements: response	Pre. statements: storage	Pre. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Argon	9.1.1	7440-37-1	Gases under pressure	Compressed gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01			P202 P271+P403	P304, P340, P313			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG27
Bromochlorodifluoromethane (R12B1)	9.1.3	353-69-3	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Bromodifluoromethane (R13B1)	9.1.3	75-63-8	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Carbon Dioxide	9.1.4	124-38-9	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01		CGA-HG01 CGA-HG03	P202 P261 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG27
Chlorodifluoromethane (R22)	9.1.3	75-45-6	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27

Table D-1—Asphyxiant gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statement	Prec. statements: prevention	Prec. statements: response	Prec. statements: storage	Prec. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Chloroheptafluorocyclobutane (RC317)	9.1.2	377-41-3	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Chloropentafluoroethane (R115)	9.1.3	76-15-3	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Chloropentafluoroethane-Chlorodifluoromethane (R502)	9.1.3		Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
1-Chloro-1,2,2,2-tetrafluoroethane (R124)	9.1.3	2837-89-0	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
1-Chloro-2,2,2-trifluoroethane (R133a)	9.1.3	75-98-7	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Chlorotrifluoromethane (R13)	9.1.3	75-72-9	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27

Table D-1—Asphyxiant gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prec. statements: prevention	Prec. statements: response	Prec. statements: storage	Prec. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
1,2-Dibromotetrafluoroethane (R114B2)	9.1.2	124-73-2	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01		CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
1,2-Dichlorodifluoroethylene (R1112a)	9.1.2	79-35-6	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01		CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Dichlorodifluoromethane (R12)	9.1.3	75-71-8	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Dichlorofluoromethane (R21)	9.1.3	75-43-4	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
1,2-Dichlorohexafluorocyclobutane (RC316)	9.1.2	356-18-3	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01		CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
1,1-Dichlorotetrafluoroethane (R114a)	9.1.2	374-07-2	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27

Table D-1—Asphyxiant gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prevention Pre. statements:	Pre. statements: response	Pre. statements: storage	Pre. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
1,2-Dichloro-1,1,2,2-tetrafluoroethane (R114)	9.1.3	76-14-2	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA- H01	EPA ODS	CGA- HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Helium	9.1.1	7440-59-7	Gases under pressure	Compressed gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA- H01			P202 P271+P403	P304, P340, P313			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG27
Heptafluoro-propane (R227)	9.1.2	431-89-0	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA- H01		CGA- HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Hexafluoroethane (R116)	9.1.2	76-16-4	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA- H01		CGA- HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Hexafluoroisopropane (R1216)	9.1.2	116-15-4	Gases under pressure Acute inhalation toxicity STOT SE liver, kidney STOT SE respiratory STOT RE kidney	Liquefied gas Category 4 Category 2 Category 3 Category 2	Warning	Gas Cylinder Health Hazard Exclamation Mark	2.2 Non-flammable Gas	H280 H332 H335 H370 H373	OSHA- H01		CGA- HG01	P202 P261 P262 P271+P403 P280+P284	P304, P340, P312 P302, P336, P315			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27

Table D-1—Asphyxiant gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prec. statements: prevention	Prec. statements: response	Prec. statements: storage	Prec. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Krypton	9.1.1	7439-90-9	Gases under pressure	Compressed gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01			P202 P271+P403	P304, P340, P313			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG27
Neon	9.1.1	7440-01-9	Gases under pressure	Compressed gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01			P202 P271+P403	P304, P340, P313			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG27
Nitrogen	9.1.1	7727-37-9	Gases under pressure	Compressed gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01			P202 P271+P403	P304, P340, P313			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG27
Octafluorocyclobutane (RC318)	9.1.2	115-25-3	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01		CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Octafluoropropane (R218)	9.1.2	76-19-7	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01		CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Pentachlorofluoromethane (R111)	9.1.3	354-56-3	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27

Table D-1—Asphyxiant gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictograms	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prevention Prec. statements:	Pre. statements: response	Pre. statements: storage	Pre. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Pentafluoroethane (R125)	9.1.2	354-33-6	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01		CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Sulfur hexafluoride	9.1.2	2551-62-4	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01		CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
1,1,1,2-Tetrachloro-2,2-difluoroethane (R112a)	9.1.3	76-11-9	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
1,1,1,2-Tetrachloro-1,2-difluoroethane (R112)	9.1.3	76-12-0	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
1,1,1,2-Tetrafluoroethane (R134a)	9.1.2	811-97-2	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01		CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
1,1,1,2-Tetrafluoro-1-Chloroethane (R124a)	9.1.3	354-25-6	Gases under pressure Hazardous to the ozone layer	Liquefied gas Category 1	Warning	Gas Cylinder Exclamation Mark	2.2 Non-flammable Gas	H280 H420	OSHA-H01	EPA ODS	CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27

Table D-1—Asphyxiant gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prevention	Precautions: response	Precautions: storage	Precautions: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Tetrafluoromethane (R14)	9.1.1	75-73-0	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01			P202 P271+P403	P304, P340, P313			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG27
Trifluoromethane (R23)	9.1.5	75-46-7	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01		CGA-HG01	P202 P262 P271+P403	P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG27
Xenon	9.1.1	7440-63-3	Gases under pressure	Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280	OSHA-H01			P202 P271+P403	P304, P340, P313			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG27

Table D-2—Flammable gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Precautionary prevention: statements:	Precautionary response: statements:	Precautionary storage: statements:	Precautionary disposal: statements:	OSHA-required precautionary statement	CGA-required precautionary statements
Acetylene	9.2.7	74-86-2	Flammable gases Gases under pressure	Category 1 Dissolved gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H231 H280	OSHA - H01		CGA-HG04	P210 P202 P271+P403	P304, P340, P313 P377 P381		P501	OSHA-PG01	CGA-PG02 CGA-PG13 CGA-PG11 CGA-PG06 CGA-PG05 CGA-PG27
Allene	9.2.1	463-49-0	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA-HG01 CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
1,3-Butadiene	9.2.11	106-89-0	Flammable gases Gases under pressure Carcinogenicity Mutagenicity Skin irritation Eye irritation	Category 1 Liquefied gas Category 1A Category 1B Category 2 Category 2A	Danger	Flame Gas Cylinder Health Hazard	2.1 Flammable Gas	H220 H280 H340 H350			CGA-HG01 CGA-HG04	P201 P202 P210 P261 P262 P271+P403 P280+P284	P308, P313 P377 P381 P305, P351, P336, P313 P302, P361, P336, P315	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG06 CGA-PG05 CGA-PG12 CGA-PG27
Butane	9.2.1	106-87-8	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA-HG01 CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
1-Butene	9.2.1	106-88-9	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA-HG01 CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27

Table D-2—Flammable gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statement	Prevention	Precautionary statements: response	Precautionary statements: storage	Precautionary statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
2-Butene	9.2.1	590-18-1	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA -H01		CGA-HG01 CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
1-Chloro-1,1-difluoroethane (R142b)	9.2.1	75-68-3	Flammable gases Gases under pressure Hazardous to the ozone layer	Category 1 Liquefied gas Category 1	Danger	Flame Gas Cylinder Exclamation Mark	2.1 Flammable Gas	H220 H280 H420	OSHA -H01	EPA ODS	CGA-HG01 CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
Cyclopropane	9.2.3	75-19-4	Flammable gases Gases under pressure STOT SE dizziness/drowsiness	Category 1 Liquefied gas Category 3	Danger	Flame Gas Cylinder Exclamation Mark	2.1 Flammable Gas	H220 H280 H336	OSHA -H01		CGA-HG01 CGA-HG04	P202 P210 P261 P262 P271+P403	P377 P381 P304, P340, P312 P302, P336, P315 P305, P351, P338			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
Deuterium	9.2.8	7782-39-0	Flammable gases Gases under pressure	Category 1 Compressed gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA-H01		CGA-HG04 CGA-HG08	P202 P210 P271+P403	P377 P381 P304, P340, P313			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG12 CGA-PG27
1,1-Difluoroethane (R152a)	9.2.1	75-37-6	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA -H01		CGA-HG01 CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27

Table D-2—Flammable gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prevention: Prec. statements:	Response: Prec. statements:	Storage: Prec. statements:	Disposal: Prec. statements:	OSHA-required precautionary statement	CGA-required precautionary statements
Difluoromethane (R32)	9.2.6	75-10-5	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA-HG01 CGA-HG04	P202 P210 P262 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG27
Dimethyl Ether	9.2.5	115-10-6	Flammable gases Gases under pressure STOT SE dizziness/ drowsiness	Category 1 Liquefied gas Category 3	Danger	Flame Gas Cylinder Exclamation Mark	2.1 Flammable Gas	H220 H280 H336	OSHA - H01		CGA-HG01 CGA-HG04	P202 P210 P261 P262 P264 P271+P403 P280	P377 P381 P304, P340, P312 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG27
2,2-Dimethylpropane	9.2.13	463-82-1	Flammable gases Gases under pressure Chronic aquatic toxicity	Category 1 Liquefied gas Category 2	Danger	Flame Gas Cylinder [Environment - for intl. shipments]	2.1 Flammable Gas	H220 H280 [H411 - for intl. shipments]			CGA-HG04	P202 P210 P271+P403 [P273 - for intl. shipments]	P377 P381 [P391 - for intl. shipments] P304, P340, P313			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Ethane	9.2.1	74-84-0	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA-HG01 CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
Ethyl Acetylene	9.2.1	107-00-6	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA-HG01 CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27

Table D-2—Flammable gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prec. statements: prevention	Prec. statements: response	Prec. statements: storage	Prec. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Ethyl Chloride	9.2.14	75-00-3	Flammable gases Gases under pressure Carcinogenicity Chronic aquatic toxicity	Category 1 Liquefied gas Category 2 Category 3	Danger	Flame Health Hazard Gas Cylinder	2.1 Flammable Gas	H220 H280 H351 [H412 - for intl. shipments]			CGA-HG04	P201 P202 P210 P261 P262 P264 P270 P271+P403 P280+P284 [P273 - for intl. shipments]	P377 P381 P308, P313 P304, P340, P313	P405		OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Ethyl Methyl Ether	9.2.13	540-67-0	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280			CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27
Ethylene	9.2.3	74-85-1	Flammable gases Gases under pressure STOT SE drowsiness/dizziness	Category 1 Compressed gas Category 3	Danger	Flame Gas Cylinder Exclamation Mark	2.1 Flammable Gas	H220 H280 H336	OSHA - H01		CGA-HG01 CGA-HG04	P202 P210 P261 P262 P271+P403	P377 P381 P304, P340, P312 P302, P336, P315 P305, P351, P338			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
Hydrogen	9.2.8	1333-74-0	Flammable gases Gases under pressure	Category 1 Compressed gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA-H01		CGA-HG04 CGA-HG08	P202 P210 P271+P403	P377 P381 P304, P340, P313			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG12 CGA-PG27

Table D-2—Flammable gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prevention statements:	Precautionary statements:	Precautionary statement	CGA-required precautionary statements
Isobutane	9.2.1	75-28-5	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA-HG01 CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
Isobutylene	9.2.1	115-11-7	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA-HG01 CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
Liquefied Petroleum Gas (LPG)	9.2.1	Mix	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA-HG01 CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
Methane	9.2.9	74-82-8	Flammable gases Gases under pressure	Category 1 Compressed gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG11 CGA-PG27
Methyl Acetylene	9.2.1	74-99-7	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA-HG01 CGA-HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27

Table D-2—Flammable gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prevention statements:	Pre. statements: response	Pre. statements: storage	Pre. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Methyl Chloride	9.2.10	74-87-3	Flammable gases Gases under pressure Acute inhalation toxicity Carcinogenicity STOT RE lung, kidney, liver, central nervous system	Category 1 Liquefied gas Category 4 Category 2 Category 2	Danger	Flame Gas Cylinder Health Hazard	2.1 Flammable Gas	H220 H280 H332 H351 H373			CGA- HG01 CGA- HG04	P201 P202 P210 P260 P262 P271+P403 P280+P284	P308, P313 P304, P340, P312 P377 P381	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG27
Methyl Fluoride	9.2.1	593-53-3	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA- HG01 CGA- HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
Methyl Vinyl Ether (Vinyl Methyl Ether)	9.2.2	107-25-5	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder Exclamation Mark	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA- HG04 CGA- HG01	P210 P202 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
Natural Gas	9.2.9	8006-14-2	Flammable gases Gases under pressure	Category 1 Compressed gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA- HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG11 CGA-PG27

Table D-2—Flammable gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prevention: statements:	Precautionary: statements:	Precautionary: response	Precautionary: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Propane	9.2.1	74-98-6	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA- HG01 CGA- HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
Propylene	9.2.1	115-07-1	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA- HG01 CGA- HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
1,1,1-Trifluoroethane (R143a)	9.2.1	420-46-2	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H280	OSHA - H01		CGA- HG01 CGA- HG04	P202 P210 P271+P403	P377 P381 P304, P340, P313 P302, P336, P315			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27
Vinyl Bromide	9.2.11	583-60-2	Flammable gases Gases under pressure Carcinogenicity	Category 1 Liquefied gas Category 1B	Danger	Flame Gas Cylinder Health Hazard	2.1 Flammable Gas	H220 H280 H350			CGA- HG01 CGA- HG04	P201 P202 P210 P261 P271+P403 P280+P284	P308, P313 P377 P381 P305, P351, P338, P313 P302, P361, P336, P315	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG06 CGA-PG05 CGA-PG12 CGA-PG27
Vinyl Chloride	9.2.12	75-01-4	Flammable gases Gases under pressure Carcinogenicity STOT RE liver, kidney, spleen	Category 1 Liquefied gas Category 1A Category 2	Danger	Flame Gas Cylinder Health Hazard	2.1 Flammable Gas	H220 H280 H350 H373			CGA- HG01 CGA- HG04	P201 P202 P210 P260 P271+P403 P280+P284	P308, P313 P377 P381 P305, P351, P338, P315 P302, P336, P315	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG27

Table D-2—Flammable gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHs pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prec. statements: prevention	Prec. statements: response	Prec. statements: storage	Prec. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Vinyl Fluoride	9.2.4	75-02-5	Flammable gases Gases under pressure Germ cell mutagenicity Carcinogenicity STOT SE drowsiness/ dizziness STOT RE liver	Category 1 Liquefied gas Category 2 Category 1A (1B) Category 3 Category 2	Danger	Flame Gas Cylinder Exclamation Mark Health Hazard	2.1 Flammable Gas	H220 H280 H336 H341 H350 H373	OSHA - H01		CGA- HG01 CGA- HG04	P201 P202 P210 P260 P262 P271+P403 P280+P284	P306, P313 P377 P381 P304, P340, P312 P302, P336, P315			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG11 CGA-PG12 CGA-PG27

Table D-3—Flammable liquids

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prec. statements: prevention	Prec. statements: response	Prec. statements: storage	Prec. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Hydrogen Cyanide	9.3.2	74-90-8	Flammable liquid Acute inhalation toxicity Acute oral toxicity Eye irritation Skin irritation STOT RE: Respiratory irritant Acute aquatic toxicity Chronic aquatic toxicity	Category 1 Category 1 Category 1 Category 2B Category 2 Category 3 Category 1 Category 1	Danger	Flame Skull and Crossbones Exclamation Mark	6.1 Poison Inhalation Hazard 3 Flammable Liquid	H224 H315+ H320+ H335 H330			CGA-HG04 CGA-HG11	P202 P210 P260 P262 P271+P403 P280+P284	P377 P381 P304, P340, P310 P301, P331, P310 P305, P351, P338, P313 P302, P352, P362+P364, P313 P332, P313 P337, P313	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
3-Methyl-1-butene	9.3.1	563-45-1	Flammable liquid Skin irritant Eye irritant Aspiration hazard STOT SE dizziness/drowsiness	Category 1 Category 2 Category 2 Category 1 Category 3	Danger	Flame Exclamation Mark Health Hazard	3 Flammable Liquid	H224 H315+ H319 H304 H336			CGA-HG04	P202 P210 P240 P241 P242 P243 P261 P262 P271+P403 P280	P377 P381 P304, P340, P312 P305, P351, P338, P313 P337, P313 P332, P313 P301, P331, P310 P302, P352, P362+P364, P313			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27

Table D-4—Pyrophoric materials

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required Hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prevention statements:	Precautionary statements: response	Precautionary statements: storage	Precautionary statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Dimethyl- zinc	9.4.3	544-87-8	Pyrophoric liquid Water-reactive Skin corrosivity Aquatic acute toxicity Aquatic chronic toxicity	Category 1 Category 1 Category 1B Category 1 Category 1	Danger	Flame Environment Corrosion	4.2 Spontaneously Combustible 4.3 Dangerous When Wet	H250 H260 H314 H400 H410				P202 P210 P222 P240 P241 P242 P243 P260 P271+P403 P280	P377 P381 P370, P378 P302, P334, P310	P422, P232		OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG17 CGA-PG18 CGA-PG27
Disilane	9.4.2	1590-87-0	Flammable gases Gases under pressure	Category 1 Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H250 H280				P202 P210 P222 P271+P403	P377 P381 P304, P340			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG17 CGA-PG18 CGA-PG27
Silane	9.4.1	7803-52-5	Flammable gases Gases under pressure Acute inhalation toxicity	Category 1 Liquefied gas Category 4	Danger	Flame Gas Cylinder Exclamation Mark	2.1 Flammable Gas	H220 H280 H332 H250				P202 P210 P222 P261 P271+P403	P304, P340, P312 P377 P381			OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG12 CGA-PG17 CGA-PG18 CGA-PG27

Table D-5—Oxidizing gases and air

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prec. statements: prevention	Prec. statements: response	Prec. statements: storage	Prec. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Air	9.5.4	132250-10-0	Gases under pressure	Compressed gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H280			CGA-HG24	P202				OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG20+ CGA-PG10 CGA-PG27
Nitrogen Trifluoride	9.5.3	7783-54-2	Oxidizing Gases Gases under pressure Acute inhalation toxicity STOT RE blood	Category 1 Liquefied gas Category 4 Category 2	Danger	Flame over Circle Exclamation Mark Gas Cylinder Health Hazard	2.2 Non-flammable gas 5.1 Oxidizer	H270 H280 H332 H371			CGA-HG10 CGA-HG11	P202 P220 P244 P260 P271+ P403	P304, P340, P312 P370+ P376			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG20+ CGA-PG10 CGA-PG21 CGA-PG22 CGA-PG27
Nitrous Oxide	9.5.1	10024-97-2	Gases under pressure Oxidizing gas STOT SE dizziness/drowsiness	Compressed gas Category 1 Category 3	Danger	Gas Cylinder Flame over Circle Exclamation Mark	2.2 Non-flammable Gas 5.1 Oxidizer	H270 H280 H336	OSHA-H01		CGA-HG01	P202 P220 P244 P261 P282 P271+ P403	P370+ P376 P304, P340, P312 P302, P336, P315			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG20+ CGA-PG10 CGA-PG21 CGA-PG22 CGA-PG27
Oxygen	9.5.2	7782-44-7	Gases under pressure Oxidizing gas	Compressed gas Category 1	Danger	Gas Cylinder Flame over Circle	2.2 Non-flammable Gas 5.1 Oxidizer	H270 H280				P202 P220 P244 P271+ P403	P370+ P376			OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG20+ CGA-PG10 CGA-PG21 CGA-PG22 CGA-PG27

Gas name	C-T Label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required Hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prec. statements: prevention	Prec. statements: response	Prec. statements: storage	Prec. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Argon, Refrigerated Liquid	9.5.1	7440-37-1	Gases under pressure	Refrigerated Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H281	OSHA-H01			P202 P271+P403 P282	P304, P340 P302, P336, P315			OSHA-PG01	CGA-PG05 CGA-PG06 CGA-PG23 CGA-PG24 CGA-PG27
Carbon Dioxide, Refrigerated Liquid	9.5.2	124-38-9	Gases under pressure	Refrigerated Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H281	OSHA-H01		CGA-HG03	P202 P271+P403 P282	P304, P340 P302, P336, P315			OSHA-PG01	CGA-PG05 CGA-PG06 CGA-PG23 CGA-PG24 CGA-PG27
Helium, Refrigerated Liquid	9.5.3	7440-59-7	Gases under pressure	Refrigerated Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H281	OSHA-H01			P202 P271+P403 P282	P304, P340 P302, P336, P315			OSHA-PG01	CGA-PG05 CGA-PG06 CGA-PG23 CGA-PG24 CGA-PG26 CGA-PG27
Hydrogen, Refrigerated Liquid	9.5.4	1333-74-0	Flammable gases Gases under pressure	Category 1 Refrigerated Liquefied gas	Danger	Flame Gas Cylinder	2.1 Flammable Gas	H220 H281	OSHA-H01		CGA-HG04 CGA-HG08	P202 P210 P271+P403 P282	P377 P381 P304, P340 P302, P336, P315			OSHA-PG01	CGA-PG05 CGA-PG06 CGA-PG23 CGA-PG24 CGA-PG26 CGA-PG27

Table D-6—Refrigerated liquefied gases

Gas name	C-7 Label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prec. statements: prevention	Prec. statements: response	Prec. statements: storage	Prec. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Neon, Refrigerated Liquid	9.5.3	7440-01-9	Gases under pressure	Refrigerated Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H281	OSHA-H01			P202 P271+P403 P282	P304, P340 P302, P336, P315			OSHA-PG01	CGA-PG05 CGA-PG06 CGA-PG23 CGA-PG24 CGA-PG26 CGA-PG27
Nitrogen, Refrigerated Liquid	9.6.1	7727-37-9	Gases under pressure	Refrigerated Liquefied gas	Warning	Gas Cylinder	2.2 Non-flammable Gas	H281	OSHA-H01			P202 P271+P403 P282	P304, P340 P302, P336, P315			OSHA-PG01	CGA-PG05 CGA-PG06 CGA-PG23 CGA-PG24 CGA-PG27
Nitrous Oxide, Refrigerated Liquid	9.6.5	10024-97-2	Gases under pressure Oxidizing gas STOT SE dizziness/ drowsiness	Compressed gas Category 1 Category 3	Danger	Gas Cylinder Flame over Circle Exclamation Mark	2.2 Non-flammable Gas 5.1 Oxidizer	H270 H281 H336	OSHA-H01			P202 P220 P244 P261 P271+P403 P282	P370+P376 P304, P340, P312 P302, P336, P315			OSHA-PG01	CGA-PG05 CGA-PG06 CGA-PG20+ CGA-PG10 CGA-PG22 CGA-PG28 CGA-PG27
Oxygen, Refrigerated Liquid	9.6.5	7782-44-7	Gases under pressure Oxidizing gas	Refrigerated Liquefied gas Category 1	Danger	Gas Cylinder Flame over Circle	2.2 Non-flammable Gas 5.1 Oxidizer	H270 H281		CGA-HG13		P202 P220 P244 P271+P403 P282	P370+P376 P302, P336, P315			OSHA-PG01	CGA-PG05 CGA-PG06 CGA-PG20+ CGA-PG10 CGA-PG22 CGA-PG23 CGA-PG24 CGA-PG28 CGA-PG27

Table D-7—Toxic liquids and gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Pre. statements: prevention	Pre. statements: response	Pre. statements: storage	Pre. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Asine	9.7.3	7784-42-1	Flammable gases Gases under pressure Acute inhalation toxicity Carcinogenicity STOT RE: blood, liver, kidney, other organs Acute aquatic toxicity Chronic aquatic toxicity	Category 1 Liquefied gas Category 1 Category 2 Category 2 Category 1 Category 1	Danger	Flame Health Hazard Skull and Crossbones Environment Gas Cylinder	2.3 Toxic Gas 2.1 Flammable Gas	H220 H280 H330 H351 H373 H410			CGA- HG04 CGA- HG11	P201 P202 P210 P260 P271+P403 P273 P280+P284	P377 P381 P304, P340, P310 P308, P313	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Carbon monoxide	9.7.1	630-08-0	Flammable gases Gases under pressure Acute inhalation toxicity STOT RE: Central nervous system Reproductive toxicant	Category 1 Compressed gas Category 3 Category 1 Category 1A	Danger	Flame Gas Cylinder Skull and Crossbones Health Hazard	2.3 Toxic Gas 2.1 Flammable Gas	H220 H280 H331 H360 H372			CGA- HG04 CGA- HG10	P202 P210 P260 P271+P403 P280	P377 P381 P304, P340, P311 P308, P313	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG27
Carbonyl sulfide	9.7.5	463-58-1	Flammable gases Gases under pressure Acute inhalation toxicity	Category 1 Liquefied gas Category 3	Danger	Flame Gas Cylinder Skull and Crossbones	2.3 Toxic Gas 2.1 Flammable Gas	H220 H280 H331			CGA- HG04 CGA- HG11 CGA- HG16	P202 P210 P261 P271+P403 P280+P284	P377 P381 P304, P340, P311	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG28 CGA-PG27

Table D-7—Toxic liquids and gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Pre. statements: prevention	Pre. statements: response	Pre. statements: storage	Pre. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Cyanogen	9.7.4	460-19-5	Flammable gases Gases under pressure Acute inhalation toxicity Acute oral toxicity Eye irritation Skin irritation Acute aquatic toxicity Chronic aquatic toxicity	Category 1 Liquefied gas Category 2 Category 1 Category 2B Category 2 Category 1 Category 1	Danger	Flame Skull and Crossbones Gas Cylinder	2.3 Toxic Gas 2.1 Flammable Gas	H220 H280 H315+ H320 H330			CGA-HG04 CGA-HG11	P202 P210 P260 P262 P271+P403 P280+P284	P377 P381 P304, P340, P310 P308, P313 P305, P351, P338, P313 P302, P352, P362+P364, P313 P337, P313	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Deuterium selenide	9.7.4	13536-95-3	Flammable gases Gases under pressure Acute inhalation toxicity Acute oral toxicity Eye irritation Skin irritation Acute aquatic toxicity Chronic aquatic toxicity	Category 1 Liquefied gas Category 1 Category 1 Category 2B Category 2 Category 1 Category 1	Danger	Flame Skull and Crossbones Gas Cylinder [Environment – for Int'l shipments]	2.3 Toxic Gas 2.1 Flammable Gas	H220 H280 H315+ H320 H330 [H410 – for Int'l ship-ship-ments]			CGA-HG04 CGA-HG11	P202 P210 P260 P262 P271+P403 [P273 – for Int'l shipments] P280+P284	P377 P381 P304, P340, P310 P308, P313 P305, P351, P338, P313 P302, P352, P362+P364, P313 P337, P313	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Diborane	9.7.8	19287-45-7	Flammable gases Gases under pressure Acute inhalation toxicity Skin irritation Eye irritation STOT SE lung, kidney and central nervous system STOT RE central nervous system	Category 1 Liquefied gas Category 1 Category 2 Category 2 Category 2	Danger	Flame Skull and Crossbones Gas Cylinder Health Hazard	2.3 Toxic Gas 2.1 Flammable Gas	H220 H250 H280 H315+ H320 H330 H371			CGA-HG04 CGA-HG11	P202 P210 P260 P262 P271+P403 P280+P284	P377 P381 P304, P340, P310 P305, P351, P338, P313 P302, P352, P362+P364, P313 P332, P313	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG17 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG31 CGA-PG27

Table D-7—Toxic liquids and gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prec. statements: prevention	Prec. statements: response	Prec. statements: storage	Prec. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Ethylene oxide	9.7.11	75-21-8	Flammable gases Gases under pressure Acute inhalation toxicity Skin irritation Skin sensitization Eye irritation Germ cell mutagenicity Carcinogenicity STOT SE: Respiratory irritation STOT RE: Liver, nervous system Reproductive toxicity	Category 1 Liquefied gas Category 3 Category 2 Category 1B Category 2 Category 1B Category 1B Category 3 Category 1 Category 1A	Danger	Flame Health Hazard Skull and Crossbones Gas Cylinder	2.3 Toxic Gas 2.1 Flammable Gas	H220 H280 H315+ H320 H317 H331 H335 H340 H350 H360 H372			CGA- HG04 CGA- HG11	P201 P202 P210 P260 P262 P271+P403 P280+P284	P377 P381 P304, P340, P311 P305, P351, P338, P313 P302, P352, P362+P364, P313 P332, P313	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG20+ CGA-PG10 CGA-PG27
Germane	9.7.2	7782-65-2	Flammable gases Gases under pressure Acute inhalation toxicity STOT RE: blood, liver, kidney, other organs	Category 1 Liquefied gas Category 2 Category 2	Danger	Flame Skull and Crossbones Gas Cylinder Health Hazard	2.3 Toxic Gas 2.1 Flammable Gas	H220 H280 H330 H370			CGA- HG04 CGA- HG11	P202 P210 P240 P241 P242 P243 P260 P264 P270 P271+P403 P280+P284	P377 P381 P304, P340, P310	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG17 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27

Table D-7—Toxic liquids and gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Pre. statements: prevention	Pre. statements: response	Pre. statements: storage	Pre. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Hydrogen selenide	9.7.4	7783-07-5	Flammable gases Gases under pressure Acute inhalation toxicity Acute oral toxicity Eye irritation Skin irritation Acute aquatic toxicity Chronic aquatic toxicity	Category 1 Liquefied gas Category 1 Category 1 Category 2B Category 2 Category 1 Category 1	Danger	Flame Skull and Crossbones Gas Cylinder [Environment - for intl. shipments]	2.3 Toxic Gas 2.1 Flammable Gas	H220 H280 H315+ H320 H330 [H410 - for intl. shipments]			CGA- HG04 CGA- HG11	P202 P210 P280 P282 P271+P403 [P273 - for intl. shipments] P280+P284	P377 P381 P304, P340, P310 P308, P313 P305, P351, P338, P313 P302, P352, P362+P364, P313 P337, P313	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Hydrogen sulfide	9.7.6	7783-06-4	Flammable gases Gases under pressure Acute inhalation toxicity STOT SE: respiratory tract Acute aquatic toxicity	Category 1 Liquefied gas Category 2 Category 3 Category 1	Danger	Flame Gas Cylinder Skull and Crossbones [Environment - for intl. shipments]	2.3 Toxic Gas 2.1 Flammable Gas	H220 H280 H330 H335 [H400 - for intl. shipments]			CGA- HG04 CGA- HG11 CGA- HG16	P202 P210 P280 P271+P403 [P273 - for intl. shipments] P280+P284	P377 P381 P304, P340, P310	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG29 CGA-PG27
Methyl bromide	9.7.9	74-83-9	Gases under pressure Flammable gases Acute inhalation toxicity Mutagenicity Skin irritation Eye irritation STOT SE: respiratory tract STOT RE: Central nervous system, lung, kidney, liver Chronic aquatic toxicity	Liquefied gas Category 1 Category 2 Category 2 Category 2 Category 2A Category 3 Category 2 Category 1	Danger	Gas Cylinder Flame Skull and Crossbones Health Hazard Exclamation Mark [Environment - for intl. shipments]	2.3 Toxic Gas	H221 H330 H335 H319 H315 H280 H373 H341 H420 [H400 - for intl. shipments]	EPA ODS		CGA- HG04 CGA- HG11	P201 P280 P282 P210 P271+P403 P280+P284 P202 [P273 - for intl. shipments]	P377 P381 P304, P340, P310 P305, P351, P338, P313 P302, P352, P362+P364, P313 P332, P313	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27

Table D-7—Toxic liquids and gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prec. statements: prevention	Prec. statements: response	Prec. statements: storage	Prec. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Methyl mercaptan	9.7.10	74-93-1	Flammable gases Gases under pressure Acute inhalation toxicity Acute aquatic toxicity Chronic aquatic toxicity	Category 1 Liquefied gas Category 3 Category 1 Category 1	Danger	Flame Gas Cylinder Skull and Crossbones [Environment - for intl. shipments]	2.3 Toxic Gas 2.1 Flammable Gas	H220 H280 H331 [H410 - for intl. shipments]			CGA-HG04	P202 P210 P281 P262 P271+P403 P280+P284 [P273 - for intl. shipments]	P377 P381 P391 P304, P340, P311	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG20+ CGA-PG10 CGA-PG27
Phosphine	9.7.7	7803-51-2	Flammable gases Gases under pressure Acute inhalation toxicity Skin corrosion Eye damage/eye irritation Acute aquatic toxicity	Category 1 Liquefied gas Category 1 Category 1B Category 1 Category 1	Danger	Flame Gas Cylinder Skull and Crossbones Corrosion [Environment - for intl. shipments]	2.3 Toxic Gas 2.1 Flammable Gas	H220 H250 H280 H314 H330 [H400 - for intl. shipments]			CGA-HG04 CGA-HG11	P202 P210 P280 P271+P403 P280+P284 [P273 - for intl. shipments]	P377 P381 P304, P340, P310 P305, P351, P338, P310 P303, P361, P353, P363, P310	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG17 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Trifluorochloroethylene (R1113)	9.7.12	79-38-3	Flammable gases Gases under pressure Acute inhalation toxicity	Category 1 Liquefied gas Category 3	Danger	Flame Skull and Crossbones Gas Cylinder Health Hazard Exclamation Mark	2.3 Toxic Gas 2.1 Flammable Gas	H220 H280 H331			CGA-HG04 CGA-HG01	P202 P210 P261 P262 P271+P403	P377 P381 P304, P340, P311	P405		OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG27

Table D-8—Toxic and corrosive liquids and gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prevention statements	Precautionary statements	Precautionary statement	CGA-required precautionary statements	
Boron Trichloride	9.8.1	10294-34-5	Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation STOT SE respiratory tract	Liquefied gas Category 3 Category 1B Category 1 Category 3	Danger	Skull and Crossbones Corrosion Gas Cylinder	2.3 Toxic Gas 8 Corrosive	H280 H331 H314			CGA-HG22	P202 P261 P262 P271+P403 P280+P284	P304, P340, P311 P303, P361, P353, P363, P310 P305, P351, P338, P310	P405	P501 OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Boron Trifluoride	9.8.3	7637-07-2	Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation STOT SE respiratory tract STOT RE kidney	Compressed gas Category 2 Category 1A Category 1 Category 3 Category 2	Danger	Gas Cylinder Skull and Crossbones Corrosion Health Hazard	2.3 Toxic Gas 8 Corrosive	H280 H314 H330 H371			CGA-HG11 CGA-HG22	P202 P260 P262 P271+P403 P280+P284	P304, P340, P310 P303, P361, P353, P363, P310 P305, P351, P338, P310	P405	P501 OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Chlorine	9.8.4	7782-50-5	Oxidizing gases Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation STOT SE, respiratory tract Acute aquatic toxicity	Category 1 Liquefied gas Category 2 Category 1 Category 1 Category 3 Category 1	Danger	Flame over Circle Skull and Crossbones Gas Cylinder Corrosion [Environment - for intl. shipments]	2.3 Toxic Gas 5.1 Oxidizer 8 Corrosive	H330 H280 H314 H270 [H400 - for intl. ship-ments]			CGA-HG22	P280+P284 P244 P202 P260 P264 P271+P403 [P273 - for intl. shipments]	P370+P376 P304, P340, P310 P305, P351, P338, P310 P303, P361, P353, P363, P310	P405	P501 OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Deuterium Chloride	9.8.1	7698-05-7	Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation	Liquefied gas Category 3 Category 1A Category 1	Danger	Skull and Crossbones Corrosion Gas Cylinder	2.3 Toxic Gas 8 Corrosive	H280 H331 H314			CGA-HG22	P202 P261 P262 P271+P403 P280+P284	P304, P340, P311 P303, P361, P353, P363, P310 P305, P351, P338, P310	P405	P501 OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27

Table D-8—Toxic and corrosive liquids and gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Precautionary statements:	Precautionary statements:	Precautionary statements:	OSHA-required precautionary statement	CGA-required precautionary statements	
Dichloro-silane	9.8.5	4109-96-0	Flammable gases Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation STOT SE: respiratory tract	Category 1 Liquefied gas Category 2 Category 1B Category 1 Category 3	Danger	Flame Skull and Crossbones Corrosion Gas Cylinder	2.3 Toxic Gas 2.1 Flammable Gas 8 Corrosive	H220 H280 H314 H330			CGA-HG22 CGA-HG11	P202 P210 P280+P284 P280 P284 P271+P403	P377 P381 P303, P361, P353, P363, P310 P304, P340, P310 P305, P351, P338, P310	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Hydrogen Bromide	9.8.1	10035-10-6	Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation STOT SE: respiratory tract	Liquefied gas Category 3 Category 1A Category 1 Category 3	Danger	Skull and Crossbones Corrosion Gas Cylinder	2.3 Toxic Gas 8 Corrosive	H280 H331 H314	CGA-HG22		CGA-HG22	P202 P261 P262 P271+P403 P280+P284	P304, P340, P311 P303, P361, P353, P363, P310 P305, P351, P338, P310	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Hydrogen Chloride	9.8.1	7647-01-0	Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation	Liquefied gas Category 3 Category 1A Category 1	Danger	Skull and Crossbones Corrosion Gas Cylinder	2.3 Toxic Gas 8 Corrosive	H280 H331 H314	CGA-HG22		CGA-HG22	P202 P261 P262 P271+P403 P280+P284	P304, P340, P311 P303, P361, P353, P363, P310 P305, P351, P338, P310	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Hydrogen Fluoride	9.8.6	7664-39-3	Acute inhalation toxicity Acute dermal toxicity Skin corrosion/irritation Serious eye damage/eye irritation	Category 3 Category 1 Category 1A Category 1	Danger	Skull and Crossbones Corrosion	8 Corrosive 6.1 Poison Inhalation Hazard	H310 H314 H331	CGA-HG22 CGA-HG11		CGA-HG22 CGA-HG11	P202 P261 P262 P264 P270 P271+P403 P280	P303, P361, P353, P363, P310 P304, P340, P311 P305, P351, P338, P310 P321	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG20+ CGA-PG10 CGA-PG27

Table D-8—Toxic and corrosive liquids and gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Pre. statements:	Pre. statements:	Pre. statements:	Pre. statements:	OSHA-required precautionary statement	CGA-required precautionary statements
Hydrogen iodide	9.8.1	10034-85-2	Gases under pressure Acute inhalation toxicity Skin corrosion/irritation	Liquefied gas Category 3 Category 1A	Danger	Skull and Crossbones Corrosion Gas Cylinder	2.3 Toxic Gas 8 Corrosive	H280 H331 H314			CGA-HG22	P202 P261 P282 P271+P403 P280+P284	P304, P340, P311 P303, P361, P353, P363, P310 P305, P351, P338, P310	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Phosgene	9.8.7	75-44-5	Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation STOT SE: respiratory tract	Liquefied gas Category 1 Category 1B Category 1 Category 3	Danger	Skull and Crossbones Gas Cylinder Corrosion	2.3 Toxic Gas 8 Corrosive	H330 H280 H314			CGA-HG11 CGA-HG22	P280+P284 P260 P202 P264 P271+P403	P304, P340, P310 P305, P351, P338, P310 P303, P361, P353, P363, P310	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Silicon Tetra-fluoride	9.8.2	7783-61-1	Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation	Compressed gas Category 2 Category 1A Category 1	Danger	Gas Cylinder Skull and Crossbones Corrosion	2.3 Toxic Gas 8 Corrosive	H280 H314 H330			CGA-HG22	P202 P260 P262 P271+P403 P280+P284	P303, P361, P353, P363, P310 P304, P340, P310 P305, P351, P338, P310	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27
Sulfur Dioxide	9.8.1	7446-09-5	Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation	Liquefied gas Category 3 Category 1B Category 1	Danger	Skull and Crossbones Corrosion Gas Cylinder	2.3 Toxic Gas 8 Corrosive	H280 H331 H314			CGA-HG22	P202 P261 P262 P271+P403 P280+P284	P304, P340, P311 P303, P361, P353, P363, P310 P305, P351, P338, P310	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27

Table D-8—Toxic and corrosive liquids and gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Pre. statements: prevention	Pre. statements: response	Pre. statements: storage	Pre. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Tungsten Hexafluoride	9.8.8	7783-82-6	Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation STOT SE: respiratory tract	Liquefied gas Category 2 Category 1A Category 1 Category 3	Danger	Skull and Crossbones Corrosion Gas Cylinder	2.3 Toxic Gas 8 Corrosive	H280 H314 H330			CGA- HG22 CGA- HG11	P202 P280 P284 P271+P403 P280+P284	P303, P361, P353, P363, P310 P304, P340, P310 P305, P351, P338, P310 P321	P405	P501	OSHA- P001	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG27

Table D-9—Toxic, oxidizing, and corrosive gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prec. statements: prevention	Prec. statements: response	Prec. statements: storage	Prec. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Chlorine Trifluoride	9.9.1	7790-91-2	Oxidizing gases Gases under pressure Acute inhalation toxicity Skin corrosion/irritation STOT SE Acute aquatic toxicity	Category 1 Liquefied gas Category 2 Category 1A Category 3 Category 1	Danger	Flame over Circle Skull and Crossbones Gas Cylinder Corrosion [Environment - for intl. shipments]	2.3 Toxic Gas 5.1 Oxidizer 8 Corrosive	H270 H280 H314 H330 [H400 - for intl. shipments]			CGA- HG23 CGA- HG22	P201 P202 P220 P244 P260 P262 P271+P403 [P273 - for intl. shipments] P280+P284	P370+P376 P303, P361, P353 P304, P340, P310 P305, P351, P338, P313 P332, P313	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG20+ CGA-PG22+ CGA-PG32 CGA-PG12 CGA-PG18 CGA-PG21 CGA-PG33 CGA-PG27
Fluorine	9.9.2	7782-41-4	Oxidizing gases Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation STOT SE respiratory tract	Category 1 Compressed gas Category 1 Category 1A Category 1 Category 3	Danger	Flame over Circle Gas Cylinder Skull and Crossbones Corrosion	2.3 Toxic Gas 5.1 Oxidizer 8 Corrosive	H270 H280 H314 H330			CGA- HG23 CGA- HG22	P201 P202 P220 P244 P260 P264 P271+P403 P280+P284	P370+P376 P303, P361, P353 P304, P340, P310 P305, P351, P338, P313	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG10 CGA-PG20+ CGA-PG22+ CGA-PG32 CGA-PG12 CGA-PG18 CGA-PG21 CGA-PG33 CGA-PG27
Nitric Oxide	9.9.3	10102-43-9	Oxidizing Gases Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation	Category 1 Compressed gas Category 1 Category 1B Category 1	Danger	Flame over Circle Gas Cylinder Skull and Crossbones Corrosion	2.3 Toxic Gas 5.1 Oxidizer 8 Corrosive	H270 H280 H314 H330 H371			CGA- HG11	P202 P220 P244 P260 P262 P271+P403 P280+P284	P370+P376 P303, P361, P353 P304, P340, P310 P305, P351, P338, P313 P332, P313	P405	P501	OSHA- PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG20+ CGA-PG10 CGA-PG21 CGA-PG22 CGA-PG27

Table D-9—Toxic, oxidizing, and corrosive gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Pre. statements: prevention	Pre. statements: response	Pre. statements: storage	Pre. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Nitrogen Dioxide	9.9.4	10102-44-0	Oxidizing gases Gases under pressure Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation	Category 1 Liquefied gas Category 1 Category 1B Category 1	Danger	Flame over Circle Gas Cylinder Skull and Crossbones Corrosion	2.3 Toxic Gas 5.1 Oxidizer 8 Corrosive	H270 H280 H314 H330 H371			CGA-HG11	P202 P220 P244 P260 P262 P271+P403 P280+P284	P370+P376 P303, P361, P353 P304, P340, P310 P305, P351, P338, P310 P332, P313	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG18 CGA-PG21 CGA-PG22 CGA-PG27

Table D-10—Corrosive liquids and gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Prevention Prec. statements:	Precautionary Prec. statements:	Precautionary Prec. statements:	OSHA-required precautionary statement	CGA-required precautionary statements
Anhydrous Ammonia	9.10.1	7664-41-7	Flammable gases Gases under pressure Skin corrosion Acute inhalation toxicity STOT SE respiratory tract	Category 2 Liquefied gas Category 1b Category 4 Category 3	Danger	Exclamation Mark Gas Cylinder Corrosion [Environment - for intl. shipments] [Skull & Crossbones - for intl. shipments]	2.2 Non-flammable Gas [2.3 Toxic Gas 8 Corrosive - for intl. shipments]	H280 H332 H221 H314 H400			CGA-HG22	P210 P260 P280 P273 P282 P202 P271+P403	P377 P381 P303, P361, P353, P363, P310 P304, P340, P312 P305, P351, P338, P310 P332, P313	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG20+ CGA-PG10 CGA-PG27
Dimethylamine	9.10.3	124-40-3	Flammable gases Gases under pressure Acute inhalation toxicity Skin irritation Eye damage STOT SE respiratory tract	Category 1 Liquefied gas Category 4 Category 2 Category 1 Category 3	Danger	Flame Exclamation Mark Gas Cylinder Corrosion	2.1 Flammable Gas	H220 H280 H318 H332 H335 H315				P202 P210 P261 P264 P271+P403 P280	P304, P340, P312 P377 P381 P305, P351, P338, P310 P303, P361, P353, P363, P313 P332, P313	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG20+ CGA-PG10 CGA-PG27
Monoethylamine	9.10.3	75-04-7	Flammable gases Gases under pressure Acute inhalation toxicity Skin irritation Eye damage STOT SE respiratory tract	Category 1 Liquefied gas Category 4 Category 2 Category 1 Category 3	Danger	Flame Exclamation Mark Gas Cylinder Corrosion	2.1 Flammable Gas	H220 H280 H318 H332 H335 H315				P202 P210 P261 P264 P271+P403 P280	P304, P340, P312 P377 P381 P305, P351, P338, P310 P303, P361, P353, P363, P313 P332, P313	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG20+ CGA-PG10 CGA-PG27

Table D-10—Corrosive liquids and gases

Gas name	C-7 label #	CAS number	Hazard class	Hazard category	Signal word	GHS pictogram(s)	Transportation label	Hazard statements	OSHA-required hazard statement	EPA-required hazard statement	CGA-required hazard statements	Preca. statements: prevention	Preca. statements: response	Preca. statements: storage	Preca. statements: disposal	OSHA-required precautionary statement	CGA-required precautionary statements
Mono-methylamine	9.10.3	74-89-5	Flammable gases Gases under pressure Acute Inhalation toxicity Skin irritation Eye damage STOT SE respiratory tract	Category 1 Liquefied gas Category 4 Category 2 Category 1 Category 3	Danger	Flame Exclamation Mark Gas Cylinder Corrosion	2.1 Flammable Gas	H220 H280 H318 H332 H335 H315				P202 P210 P261 P264 P271+P403 P280	P304, P340, P312 P377 P381 P305, P351, P338, P310 P303, P361, P353, P363, P313 P332, P313		P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG20+ CGA-PG10 CGA-PG27
Trichlorosilane	9.10.2	10025-78-2	Flammable liquids Acute inhalation toxicity Skin corrosion/irritation Serious eye damage/eye irritation STOT SE respiratory tract Substances which, in contact with water, emit flammable gas	Category 1 Category 4 Category 1A Category 1 Category 3 Category 1	Danger	Flame Corrosion	4.3 Dangerous When Wet 3 Flammable Liquid 8 Corrosive	H260 H314 H224 H332			CGA-HG04 CGA-HG22	P202 P223 P231+P232 P260 P264 P233 P271+P403 P210 P243 P241 P242 P240 P280 P222	P303, P361, P353, P363, P310 P304, P340, P312 P305, P351, P338, P310 P332, P313 P370, P378 P381	P405	P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG20+ CGA-PG10 CGA-PG27
Trimethylamine	9.10.3	75-50-3	Flammable gases Gases under pressure Acute Inhalation toxicity Skin irritation Eye damage STOT SE respiratory tract	Category 1 Liquefied gas Category 4 Category 2 Category 1 Category 3	Danger	Flame Exclamation Mark Gas Cylinder Corrosion	2.1 Flammable Gas	H220 H280 H318 H332 H335 H315				P202 P210 P261 P264 P271+P403 P280	P304, P340, P312 P377 P381 P305, P351, P338, P310 P303, P361, P353, P363, P313 P332, P313		P501	OSHA-PG01	CGA-PG02 CGA-PG05 CGA-PG06 CGA-PG12 CGA-PG20+ CGA-PG10 CGA-PG27

Appendix E—Gaseous mixture classification decision tree (Normative)

Appendix E provides a decision tree to determine the classification of gaseous mixtures in accordance with OSHA's Hazard Communication Standard [2].

NOTE—Figures E-1 through E-13 have been adapted with permission from EIGA Doc 169/13 [14].

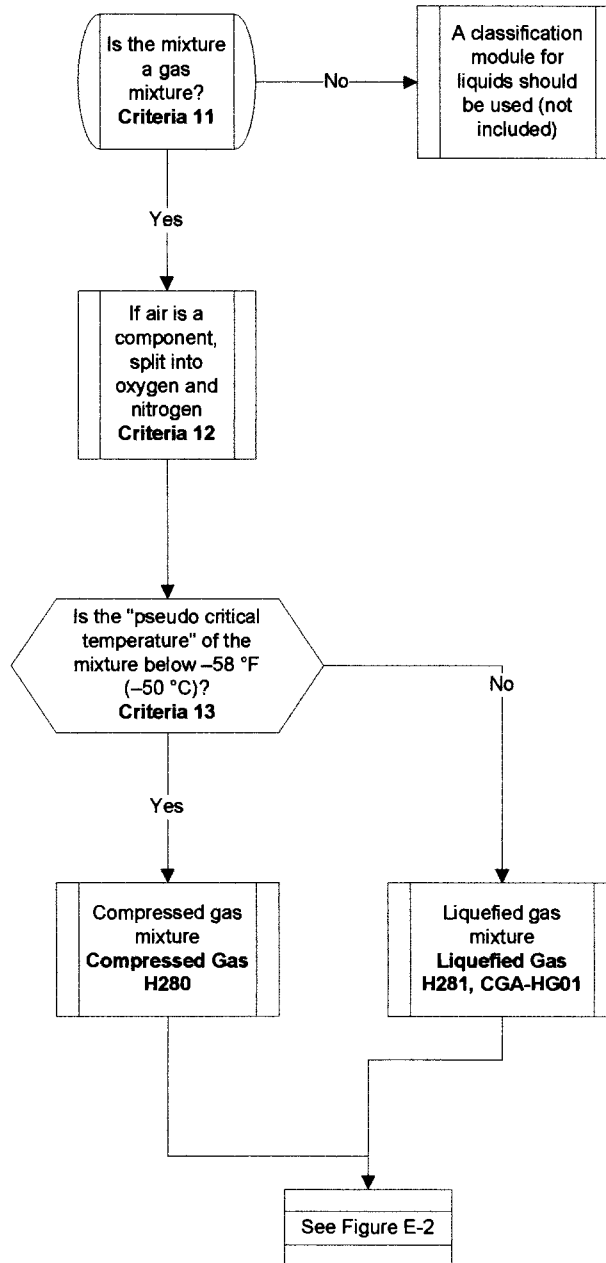


Figure E-1—Classification for physical hazards (GHS Chapter 2.5: gases under pressure)

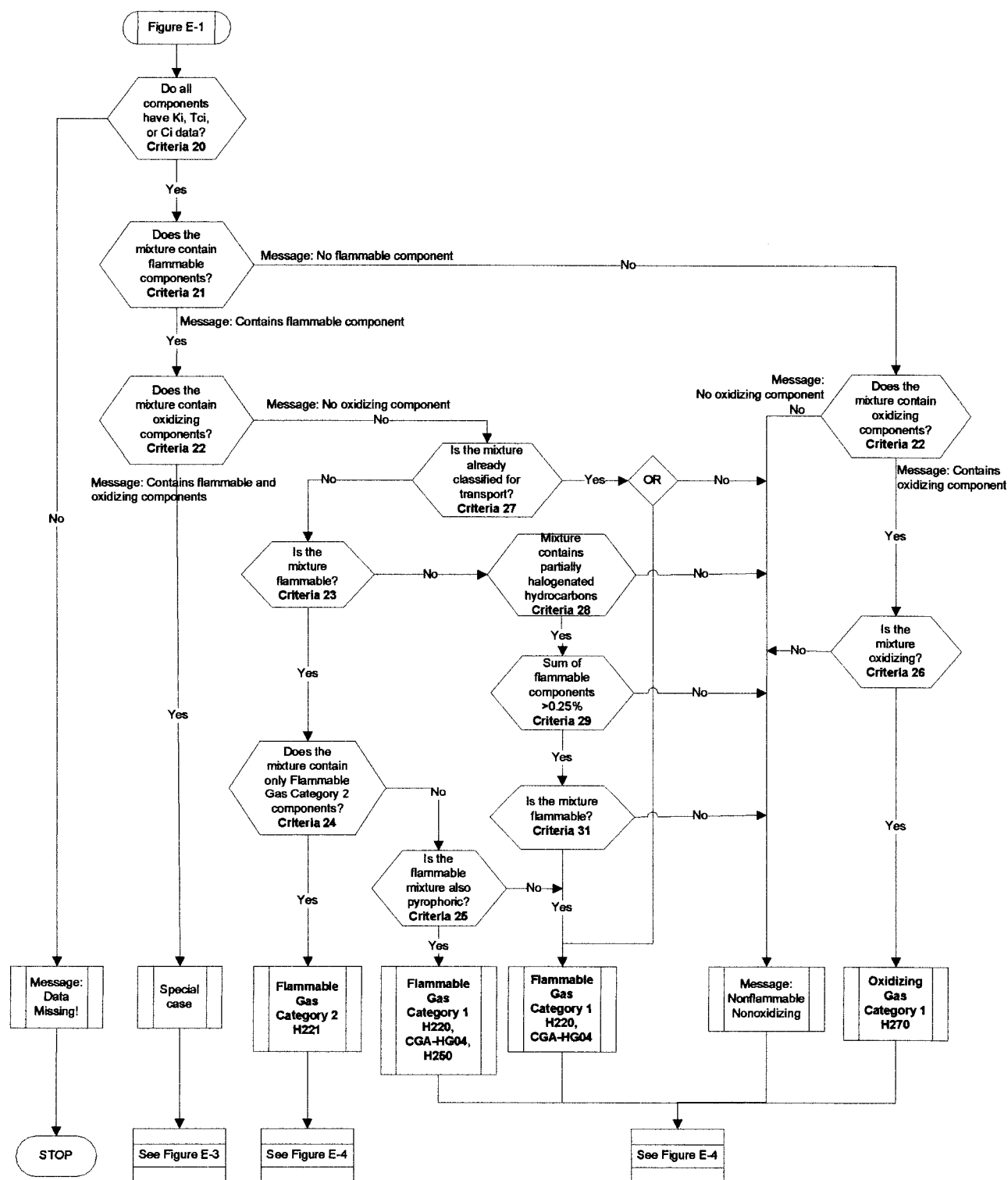
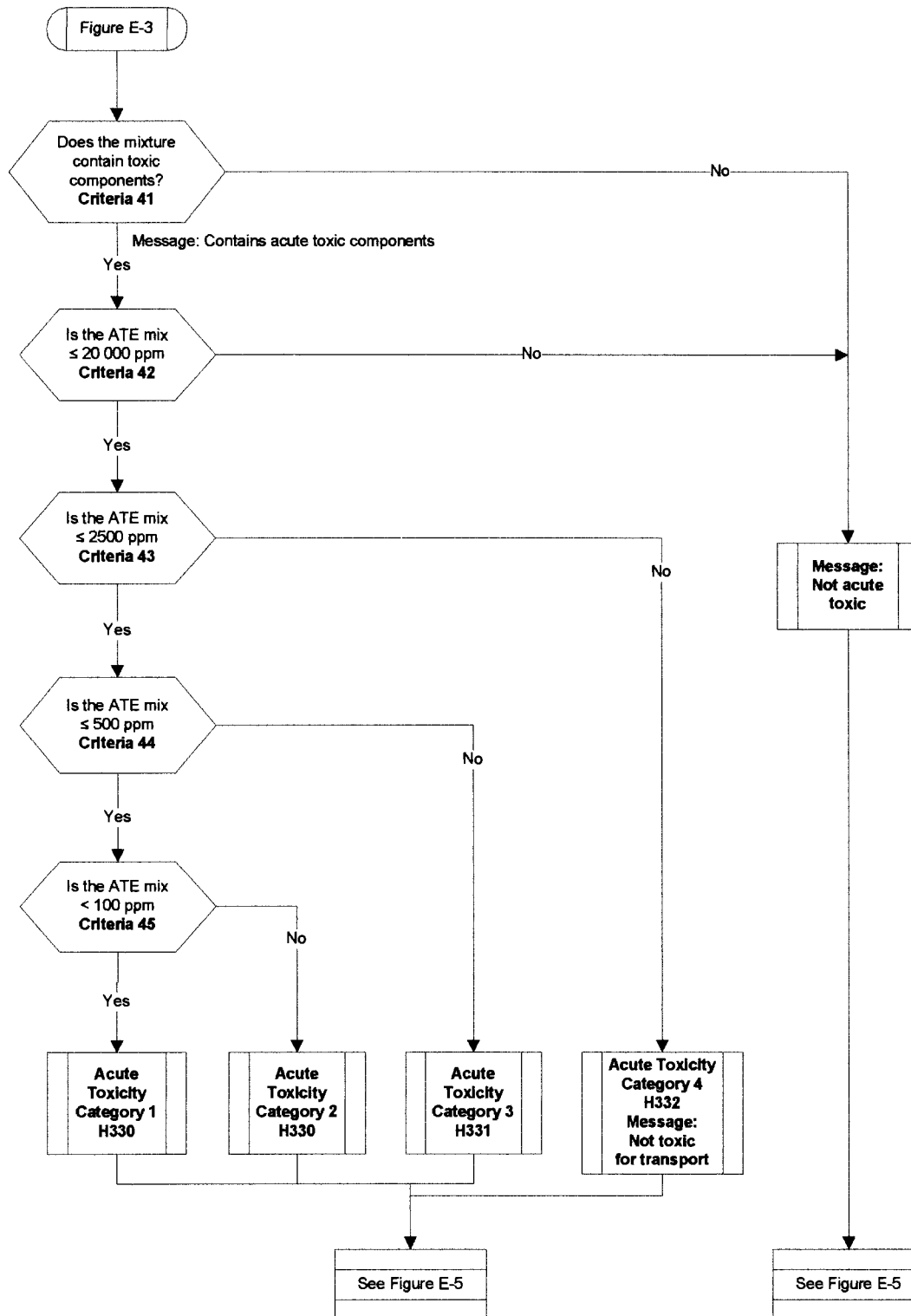




Figure E-3—Classification for physical hazards (GHS Chapters 2.2 and 2.4 cont.: mixture contains Flammable gases AND Oxidizing gases according to flamox rules in ISO 10156:2010 for international or ISO 10156:1996 for domestic)



NOTE—The LC₅₀ values for most of the gases shown this publication are found in CGA P-20, *Standard for the Classification of Toxic Gas Mixtures* [17].

Figure E-4—Classification for health hazards (GHS Chapter 3.1: acute toxicity)

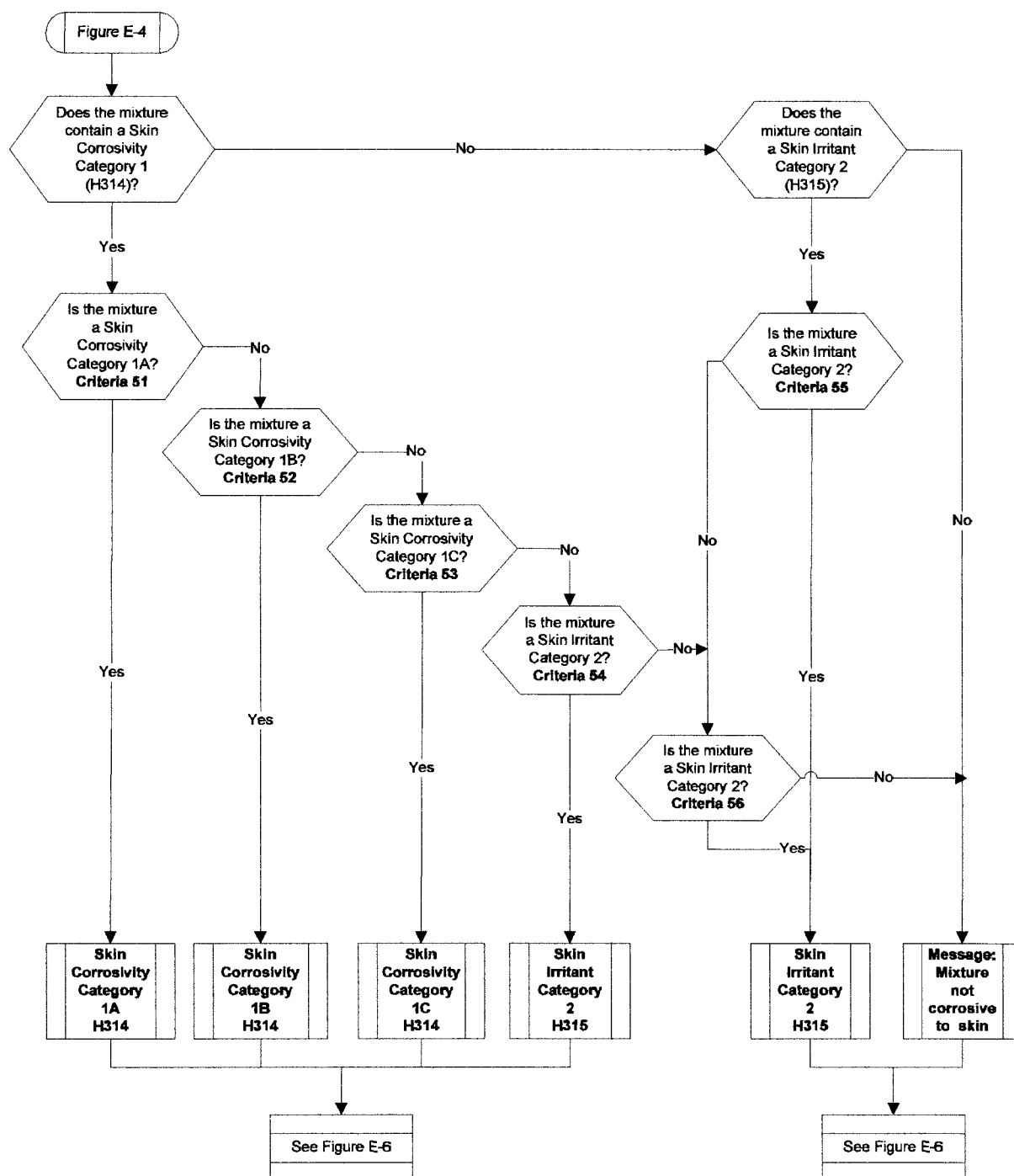


Figure E-5—Classification for health hazards (GHS Chapter 3.2: skin corrosion/irritation)

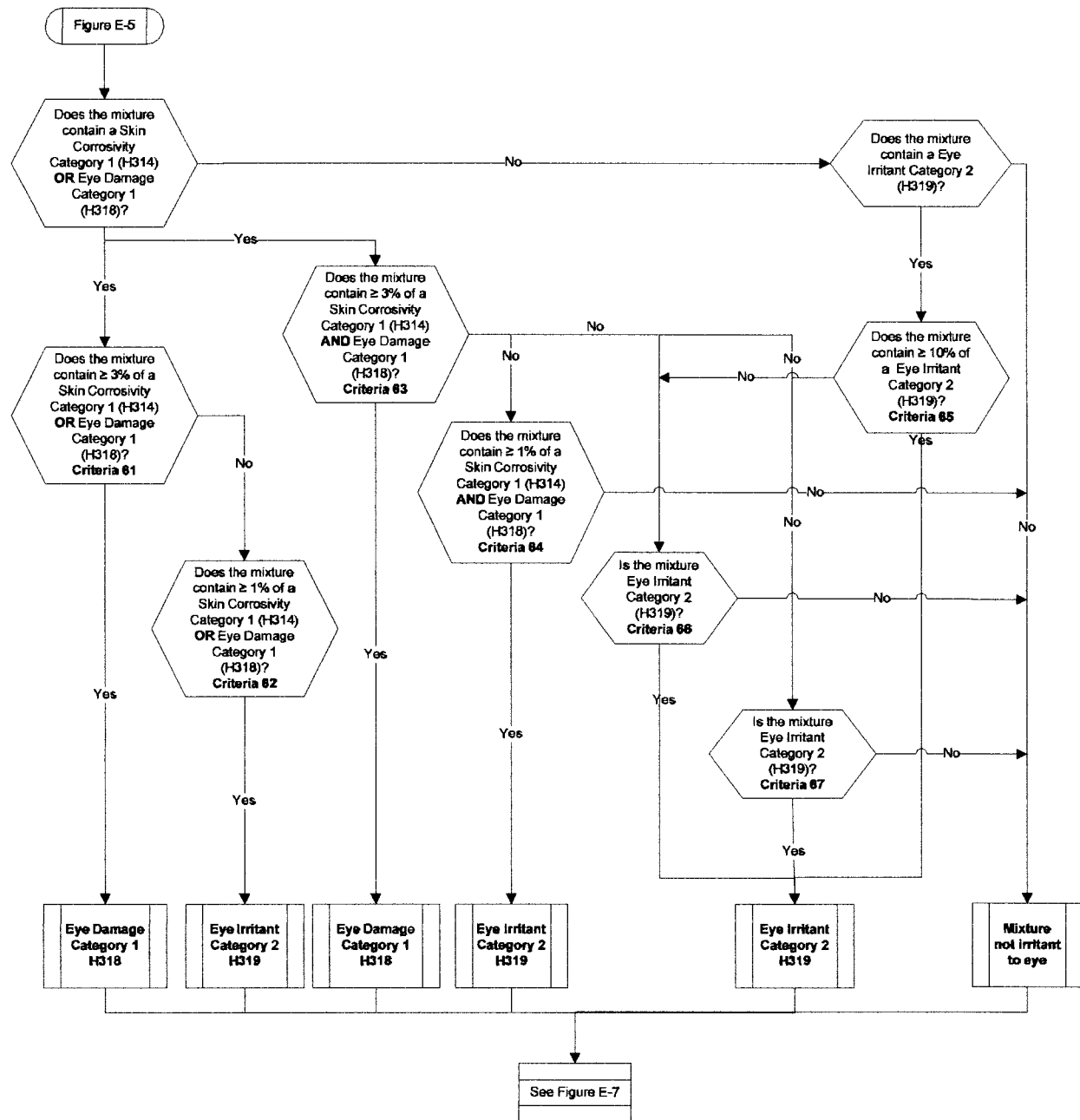


Figure E-6—Classification for health hazards (GHS Chapter 3.3: serious eye damage/eye irritation)

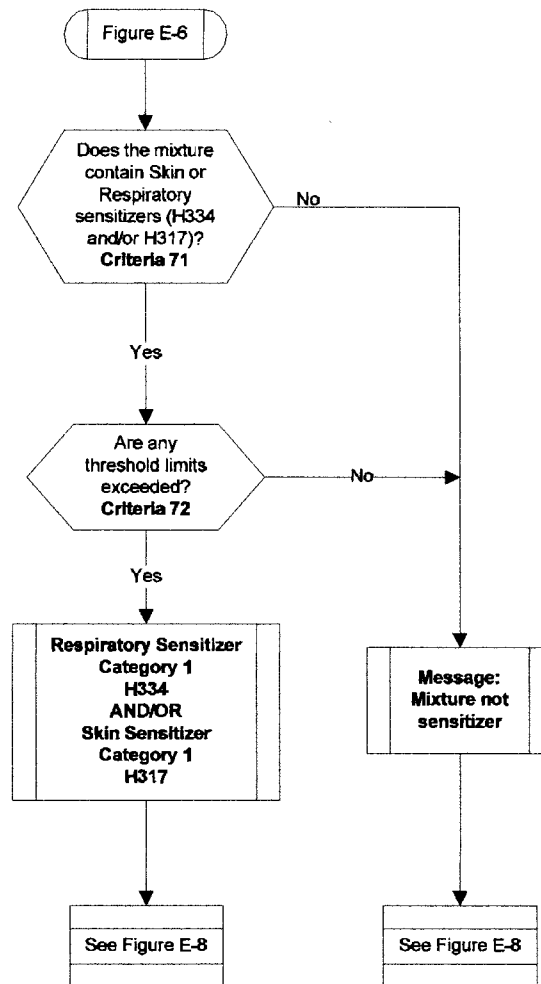


Figure E-7—Classification for health hazards (GHS Chapter 3.4: respiratory or skin sensitization)

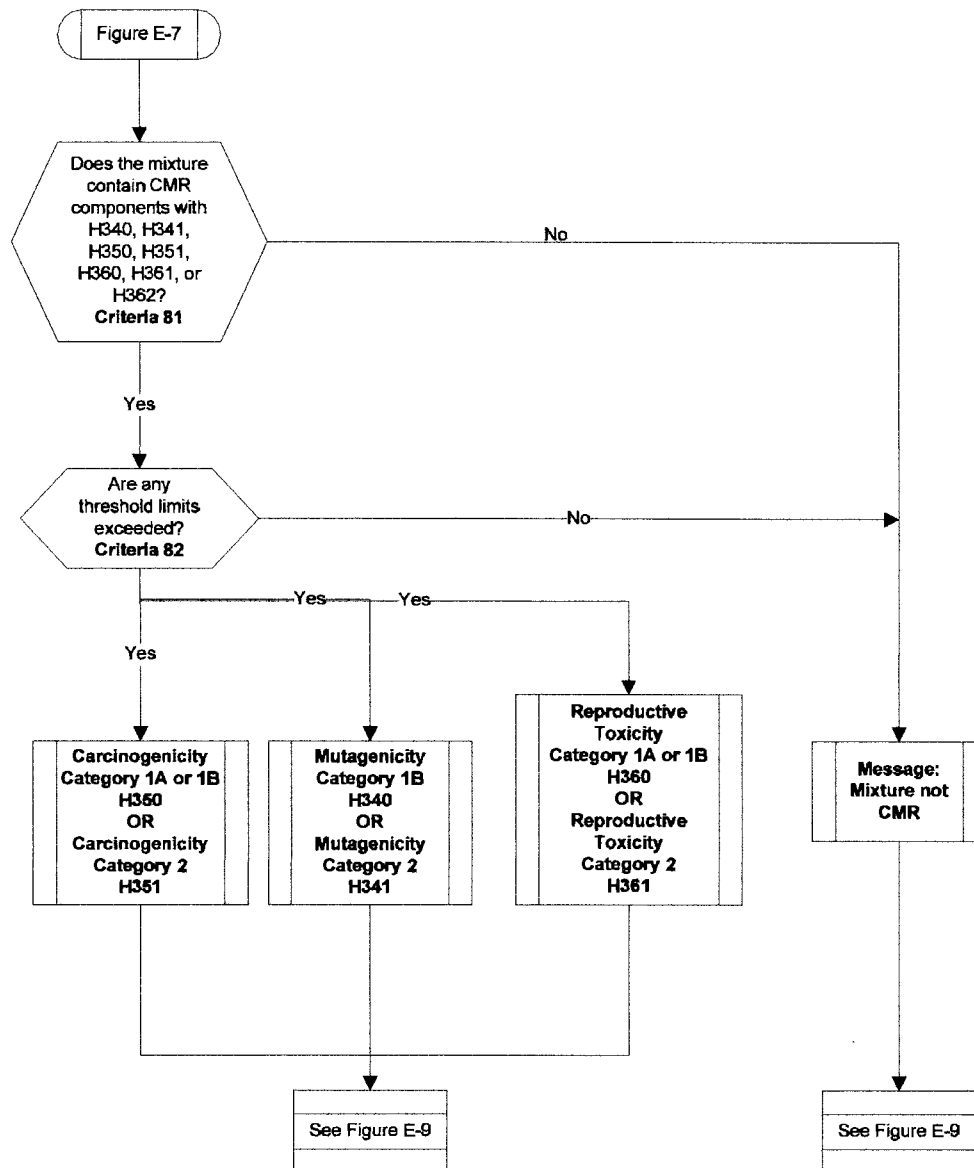


Figure E-8—Classification for health hazards (GHS Chapter 3.5: germ cell mutagenicity, GHS Chapter 3.6: carcinogenicity, GHS Chapter 3.7: reproductive toxicity)

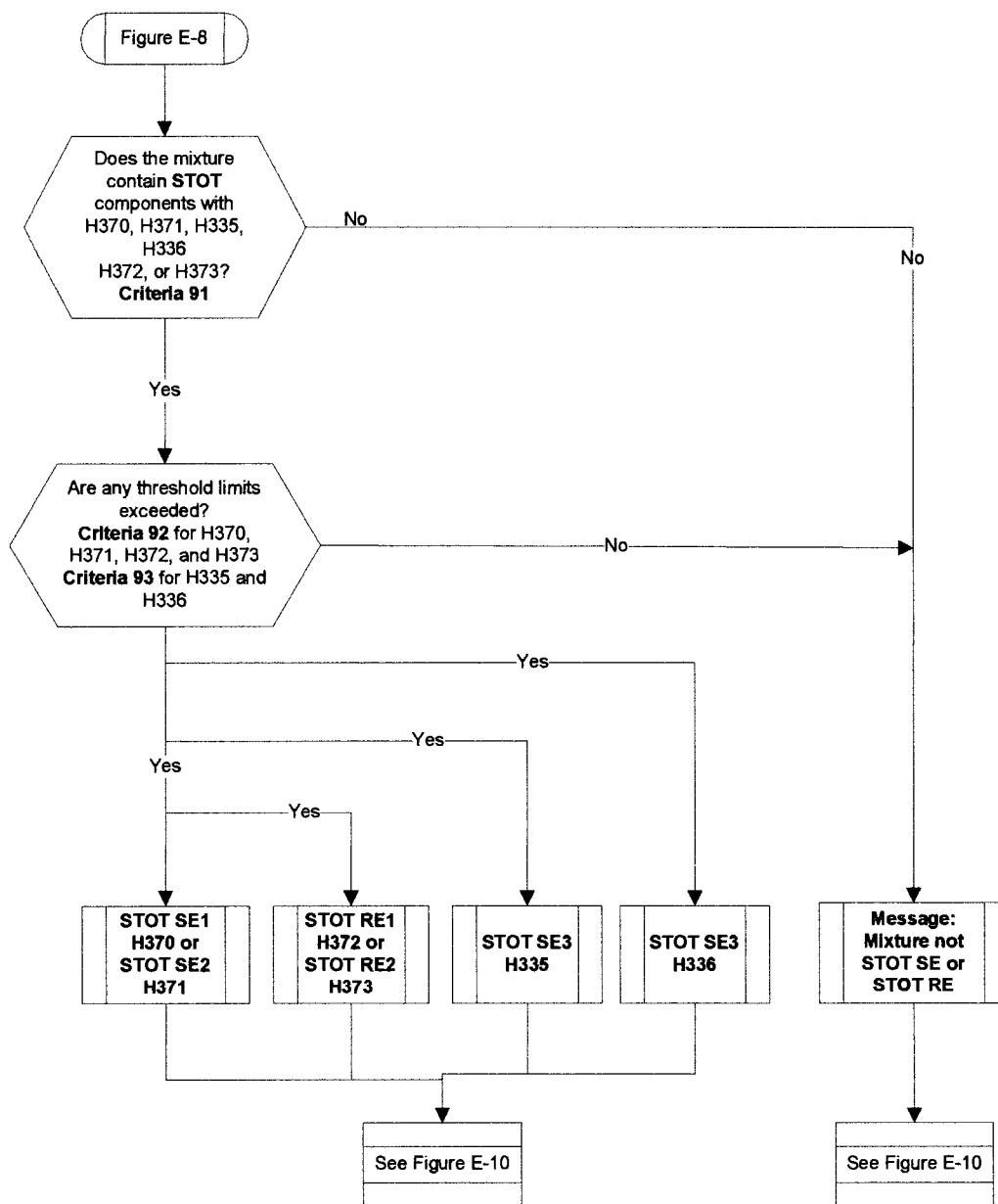


Figure E-9—Classification for health hazards (GHS Chapter 3.8: specific target organ toxicity—single exposure, GHS Chapter 3.9: specific target organ toxicity—repeated exposure)

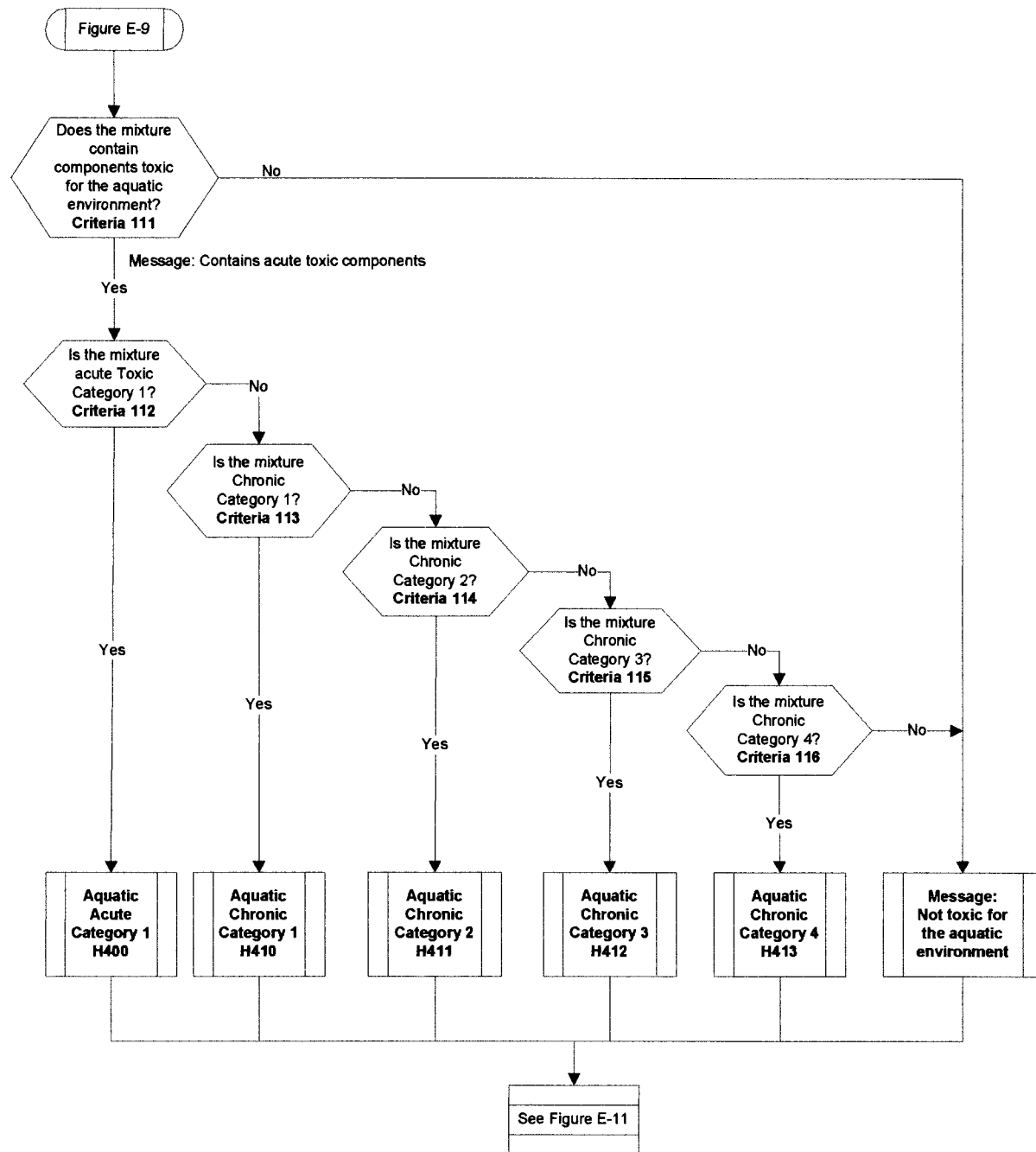
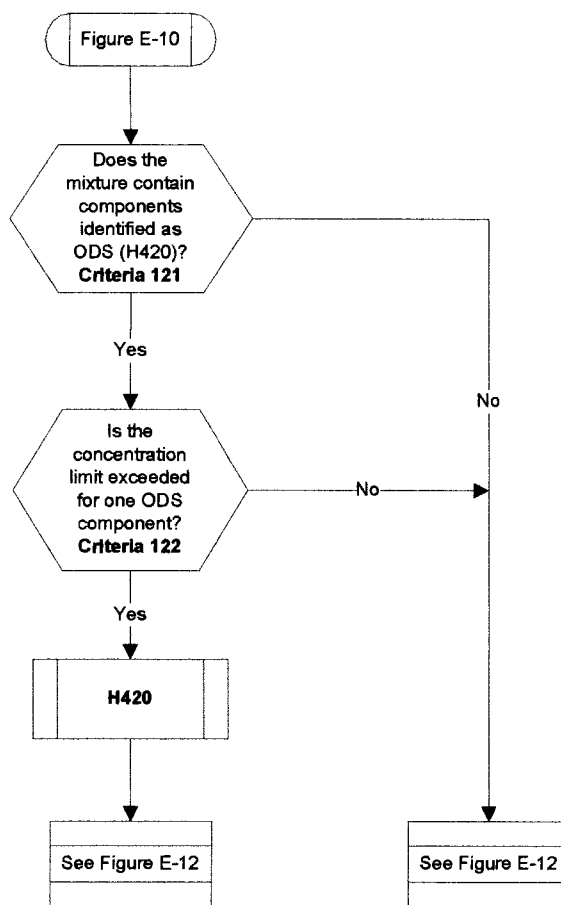


Figure E-10—Classification for environmental hazards (GHS Chapter 4.1: hazardous to the aquatic environment)—OPTIONAL



NOTE—For shipments within the United States, this mixture, because it contains a component that has an ozone depleting property, shall be labeled as follows: Warning: Contains (compound names), substances which harm the public health and environment by destroying ozone in the upper atmosphere.

Figure E-11—Classification for environmental hazards (GHS Chapter 4.2: hazardous for the ozone layer)

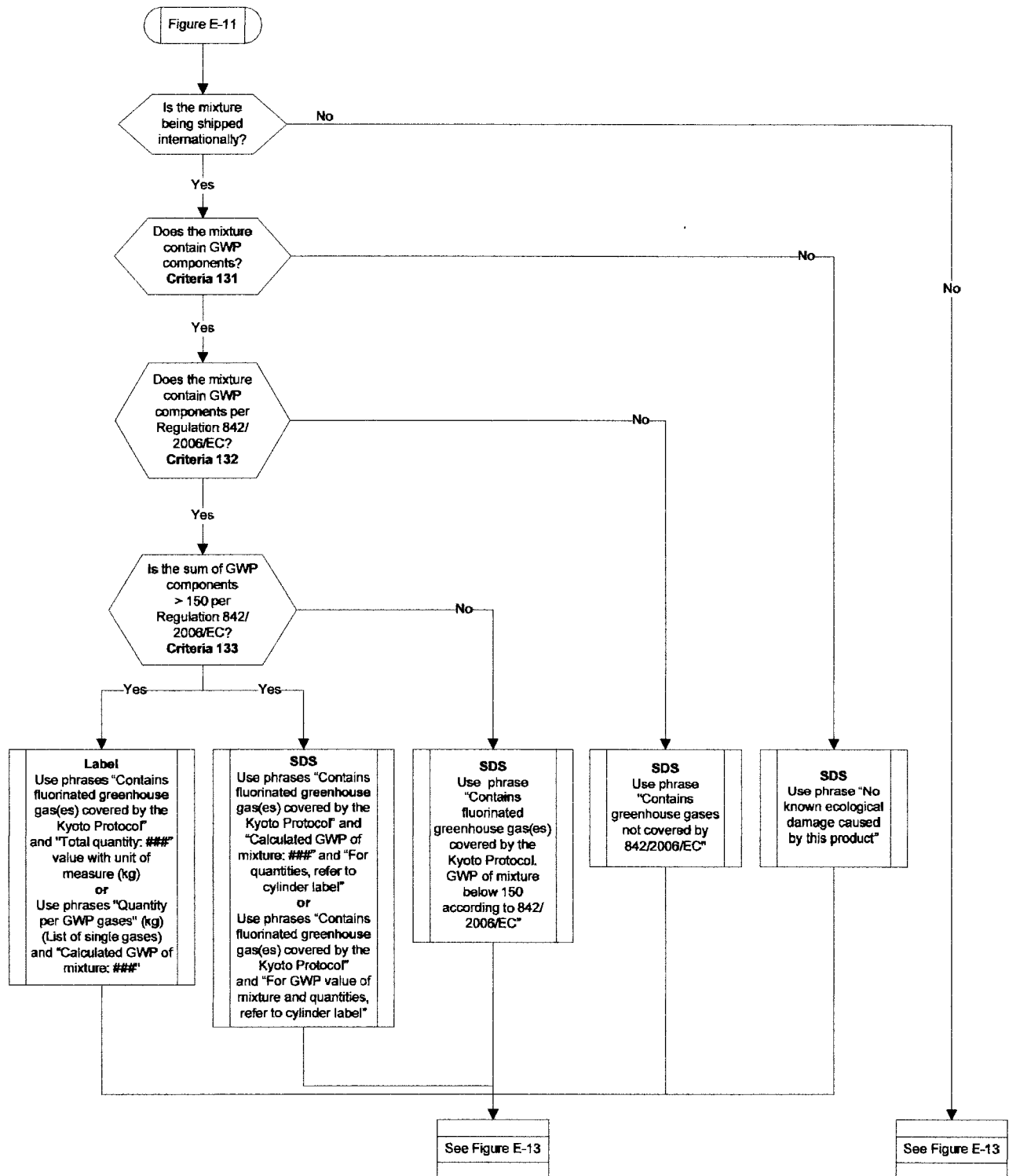


Figure E-12—Classification for environmental hazards (EC Directive 842/2006: effects on global warming—Applicable only to shipments to Europe)

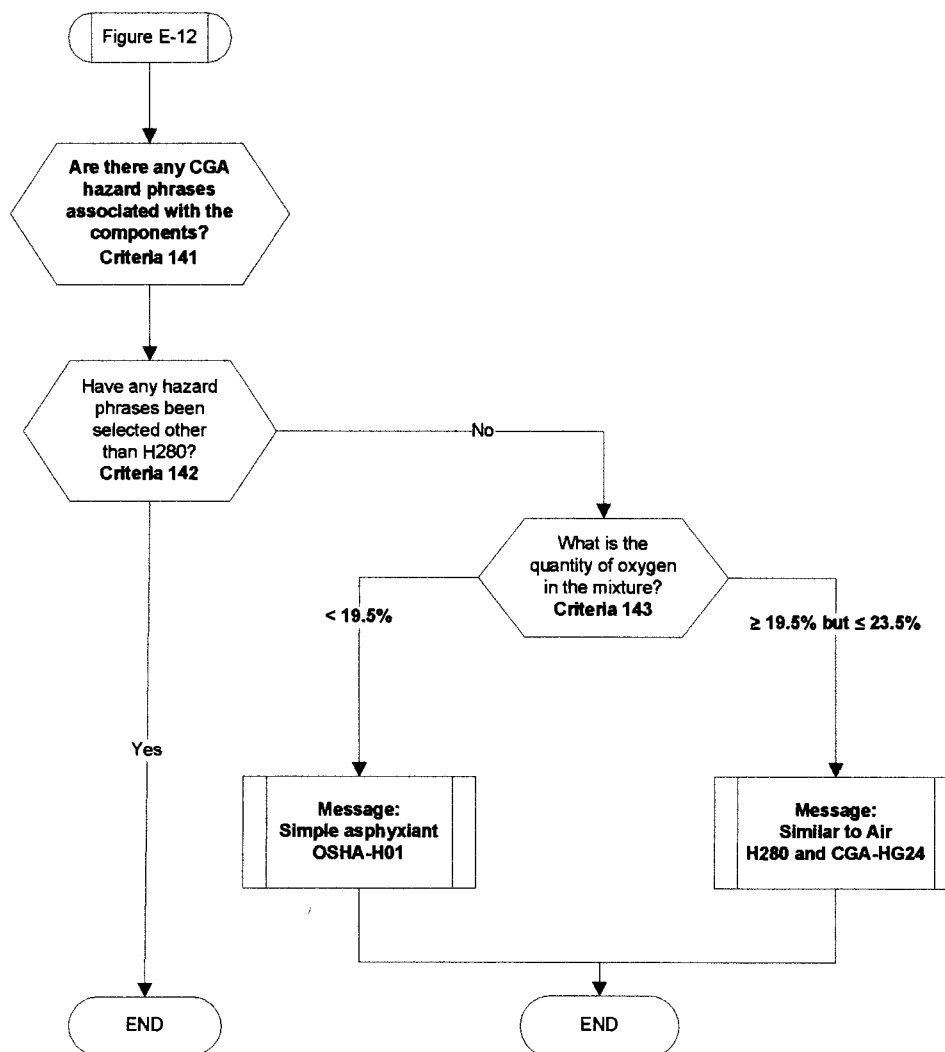


Figure E-13—Asphyxiant-AIR

Table E-1—Criteria for Appendix E Figures

Criteria #	Description
Figure E-1 Physical state	
11	<p>Mixtures that contain liquefied gases and liquids are classified as liquids if the vapor pressure of the mixture at 122 °F (50 °C) is not higher than 43.5 psia (300 kPa, abs).</p> <p>The vapor pressure of the mixture can be approximated as the sum of the vapor pressures of the components times their relevant concentration (in mole %):</p> $P_{vtot} = \sum P_{vi} \cdot X_i$ <p>Where P_{vi} is the vapor pressure of the i^{th} component and X_i is the concentration in molar fraction of the i^{th} component.</p>
12	<p>If air is selected, it is split into oxygen and nitrogen in the following ratio:</p> <p>$X_i = 0.21$ oxygen $X_i = 0.79$ nitrogen</p>
13	<p>If $\sum (X_i \cdot T_{ki}) > 223K -58 °F (-50 °C)$, the gas mixture is a liquefied gas. T_k is the critical temperature of the gas component in Kelvin.</p>
Figures E-2 and E-3 Flammability and oxy-potential	
20	All components shall have either a K_i , T_{ci} , or C_i value.
21	Does the mixture contain components with $T_{ci} > 0$?
22	<p>Does the mixture contain components with $C_i > 0$?</p> <p>If yes, message: "contains flammable and oxidizing components".</p>
23	<p>For each flammable component in the mixture, determine the normalized concentration without oxidizing components using the following formula:</p> $\frac{A_i}{100 - \% \text{Oxidizer}} \cdot 100\%$ <p>ISO 10156:2010—Clause 3.3 or ISO 10156:1996—Clause 4.6.1 [6, 12]:</p> <ol style="list-style-type: none"> $\sum (X_i \cdot K_i)$ for mixture components, which have a K_b value $\sum (X_i)$ for mixture components, which have a T_{ci} value Adjustment of the proportions to reach a sum of 100% $\sum \frac{NewX_i}{T_{ci}}$ for all flammable components. <p>If the value computed is > 1, the mixture is flammable.</p>
24	All flammable gases are identified with Flammable Gas Category 2, GHS H221.
25	<p>Pyrophoric gases are identified with phrase GHS H250;</p> <p>$\sum X_i$ for components with phrase GHS H250;</p> <p>If the result is > 1, the mixture is pyrophoric.</p>
26	<p>For international shipments, use ISO 10156:2010—Clause 4.3.1 [6]</p> <p>If oxidizing power (OP) > 23.5, the mixture is more oxidizing than air.</p> <p>For domestic shipments, use ISO 10156:1996—Clause 5.3 [12]</p> <p>If OP is > 23.5, the mixture is more oxidizing than air.</p>
27	<p>The mixture falls into the limits of concentrations to be identified as a distinct UN number and not as a NOS position (see P200 from the UN <i>Model Regulations</i>) [13].</p> <p>NOTE—This criteria pertains primarily to ethylene oxide mixtures.</p>

28	The mixture contains more than 0.5% of partially halogenated hydrocarbons. NOTE—This criteria is applicable for international shipments using ISO 10156:2010 [6].
29	The sum of the flammable components is greater than 0.25%. NOTE—This criteria is applicable for international shipments using ISO 10156:2010 [6].
30	The L_i and T_c flamox are exceeded $T_{ci}(\text{flamox}) = T_{ci} \cdot \left(\frac{1 - x_{O_2}}{21\%} \right)$ <p>For mixture containing more than one flammable component:</p> $T_c(\text{mix}) = \frac{\sum A_i}{\sum \left(\frac{A}{T_c} \right)_i}$ <p>where A_i are the concentrations in mole % of the flammable components.</p>
31	Same as criteria 23 where the nonflammable partially halogenated hydrocarbons are considered as flammable components with T_c values between brackets in Table 4.2 from EIGA Doc 169/13 [14]. NOTE—This criteria is applicable for international shipments using ISO 10156:2010 [6].
32	For mixture containing more than one flammable component: $LOQ(\text{mix}) = \frac{\sum A_i}{\sum \left(\frac{A}{LOC} \right)_i}$ <p>where A_i are the concentrations in mole % of the flammable components.</p>
33	For mixture containing more than one flammable component: $LEL(\text{mix}) = \frac{\sum A_i}{\sum \left(\frac{A}{LEL} \right)_i}$ <p>where A_i are the concentrations in mole % of the flammable components.</p> <p>The mixture is flammable if the sum of the flammable components > LEL(mix). The sum of the flammable components is adjusted with a normalization factor for inert gases other than nitrogen:</p> $\text{Normalization factor } F = \frac{1}{1 + \sum_{k=1}^p (K_k - 1) B_k}$ <p>Where B_k is the inert gas concentration and K_k the coefficient of equivalency</p>
34	ISO 10156:1996 – Clause 4.6.2.2, Condition 2 [12] <p>The sum of the flammable gases in the initial mixture is greater than or equal to 90% of the LFL in air of the flammable gas mixture. This occurs when the following condition is fulfilled:</p> $\sum \frac{A_i}{0.9 \cdot L_i} \cdot 100 \geq 1$ <p>Where:</p> <ul style="list-style-type: none"> A_i is the molar fraction of the i^{th} flammable gas L_i is the LFL in air of the i^{th} flammable gas <p>NOTE—This criterion is applicable for domestic shipments using ISO 10156:1996 [12].</p>

Figure E-4 Acute toxicity

41	<p>Does the mixture contain components with H330, H331, or H332 and with LC₅₀/4 hour value (ATE)?</p> <p>Calculate ATE of the mixture</p> $\frac{100}{ATE_{mix}} = \sum \frac{C_i}{n ATE_i}$ <p>If the LC₅₀ values are maintained in rat/1 hour, the threshold limits in criteria 42, 43, 44 and 45 should be multiplied by 2 to convert the value to LC₅₀/4 hour.</p>
42	If ATE _{mix} ≤ 20 000 ppm, the mixture is not Acute Toxic
43	If ATE _{mix} ≤ 2500 ppm, the mixture is Acute Toxicity Category 4
44	If ATE _{mix} ≤ 500 ppm, the mixture is Acute Toxicity Category 3
45	If ATE _{mix} < 100 ppm, the mixture is Acute Toxicity Category 2 otherwise, the mixture is Acute Toxicity Category 1
Figure E-5 Skin corrosion/irritation	
51	If the sum of Skin Corrosivity Category 1A components ≥ 5%, the mixture is Skin Corrosivity Category 1A
52	If the sum of Skin Corrosivity Categories 1A + 1B components ≥ 5%, the mixture is Skin Corrosivity Category 1B
53	If the sum of Skin Corrosivity Categories 1A + 1B + 1C components ≥ 5%, the mixture is Skin Corrosivity Category 1C
54	If the sum of Skin Corrosivity Category 1 components ≥ 1% but < 5%, the mixture is Skin Irritant Category 2
55	If the sum of Skin Irritation Category 2 components ≥ 10%, the mixture is Skin Irritant Category 2
56	<p>If (10 • ∑ Skin Corrosivity Category 1 concentration) + ∑ Skin Irritation Category 2 concentration is ≥ 10%, the mixture is classified Skin Irritant Category 2.</p> <p>The following formula shall be used in cases where Specific Concentration Limits (SCL) are defined for one or more components but can be used in all cases:</p> <p>The mixture is classified for skin corrosion/irritation if the</p> $\text{Sum of (ConcA / cIA) + (ConcB / cIB) + ... + (ConcZ / cIZ) is } \geq 1$ <p>Where ConcA = the concentration of substance A in the mixture; cIA = the concentration limit (either specific or generic) for substance A for the hazard considered; ConcB = the concentration of substance B in the mixture; cIB = the concentration limit (either specific or generic) for substance B; etc.</p> <p>See ISO 13338:1995 for additional information [15].</p>
Figure E-6 Serious eye damage/eye irritation	
61	If the sum of Skin Corrosivity Category 1 components OR Eye Damage Category 1 components ≥ 3%, the mixture is Eye Damage Category 1 GHS H318
62	If the sum of Skin Corrosivity Category 1 components OR Eye Damage Category 1 components ≥ 1% but < 3%, mixture is Eye Irritant Category 2 GHS H319
63	If the sum of Skin Corrosivity Category 1 components AND Eye Damage Category 1 components ≥ 3%, mixture is Eye Damage Category 1 GHS H318
64	If the sum of Skin Corrosivity Category 1 components AND Eye Damage Category 1 components ≥ 1% but < 3%, mixture is Eye Irritant Category 2 GHS H319
65	If the sum of Eye Irritant Category 2 components ≥ 10%, mixture is Eye Irritant Category 2 GHS H319
66	If the sum of Eye Damage Category 1 components • 10 plus the sum of Eye Irritant Category 2 components ≥ 10% , mixture is Eye Irritant Category 2 GHS H319

67	<p>If the sum of (Skin Corrosivity Category 1 components AND Eye Damage Category 1 components) • 10 plus sum Eye Irritant 2 components $\geq 10\%$, mixture is Eye Irritant Category 2 GHS H319</p> <p>$(10 \cdot \sum (\text{Skin Corrosivity Category 1 AND Eye Damage Category 1}) \text{ concentration}) + \sum \text{Eye Irritation Category 2 concentration} \geq 10\%$ is a Eye Irritant Category 2</p> <p>The following formula shall be used in case where Specific Concentration Limits (SCL) are defined for one or more components but can be used in all cases:</p> <p>The mixture is classified for serious eye damage/eye irritation if the</p> <p>Sum of $(\text{ConcA} / \text{cIA}) + (\text{ConcB} / \text{cIB}) + \dots + (\text{ConcZ} / \text{cIZ})$ is ≥ 1</p> <p>Where ConcA = the concentration of substance A in the mixture; cIA = the concentration limit (either specific or generic) for substance A for the hazard considered; ConcB = the concentration of substance B in the mixture; cIB = the concentration limit (either specific or generic) for substance B; etc.</p> <p>See ISO 13338:1995 for additional information [15].</p>
Figure E-7 Respiratory or skin sensitization	
71	Mixture contains respiratory or skin sensitizing components with GHS H334 and/or GHS H317.
72	<p>If mixture contains a component that is a Respiratory Sensitizer Category 1 or 1A $\geq 0.1\%$, then the mixture is classified Respiratory Sensitizer Category 1.</p> <p>If mixture contains a component that is a Respiratory Sensitizer Category 1B $\geq 0.2\%$, then the mixture is classified Respiratory Sensitizer Category 1.</p> <p>If mixture contains a component that is a Skin Sensitizer Category 1 or 1A $\geq 0.1\%$, then the mixture is classified Skin Sensitizer Category 1.</p> <p>If mixture contains a component that is a Skin Sensitizer Category 1B $\geq 1.0\%$, then the mixture is classified Skin Sensitizer Category 1.</p>
Figure E-8 Mutagenicity, carcinogenicity and toxic for reproduction	
81	The mixture contains CMR components with GHS H340, GHS H341, GHS H350, GHS H351, GHS H360, GHS H361, or GHS H362
82	<p>If mixture contains a component that is a Mutagen Category 1A or 1B $\geq 0.1\%$, then the mixture is classified Mutagen Category 1.</p> <p>If mixture contains a component that is a Mutagen Category 2 $\geq 1.0\%$, then the mixture is classified Mutagen Category 2.</p> <p>If mixture contains a component that is a Carcinogen Category 1 $\geq 0.1\%$, then the mixture is classified Carcinogen Category 1.</p> <p>If mixture contains a component that is a Carcinogen Category 2 $\geq 0.1\%$, then the mixture is classified Carcinogen Category 2.</p> <p>If mixture contains a component that is a Reproductive Toxicant Category 1 $\geq 0.1\%$, then the mixture is classified Reproductive Toxicant Category 1.</p> <p>If mixture contains a component that is a Reproductive Toxicant Category 2 $\geq 0.1\%$, then the mixture is classified Reproductive Toxicant Category 2.</p> <p>Any other category effects on or via lactation $\geq 0.1\%$ classifies mixture as a Reproductive Toxicant.</p>
Figure E-9 STOT- single exposure and STOT-repeated exposure	
91	The mixture contains STOT Single Exposure or STOT Repeated exposure with H370, H371, H335, H336, H372, or H373.

92	<p>If mixture contains a component that is a STOT SE Category 1 $\geq 1.0\%$, then the mixture is classified STOT SE Category 1.</p> <p>If mixture contains a component that is a STOT SE Category 2 $\geq 1.0\%$, then the mixture is classified STOT SE Category 2.</p> <p>If mixture contains a component that is a STOT RE Category 1 $\geq 1.0\%$, then the mixture is classified STOT RE Category 1.</p> <p>If mixture contains a component that is a STOT RE Category 2 $\geq 1.0\%$, then the mixture is classified STOT RE Category 2.</p>
93	If mixture contains components that are a STOT SE Category 3 and sum of concentrations exceeds 20%, then the mixture is classified STOT SE Category 3.
Figure E-10 Hazardous to the aquatic environment (Optional)	
111	The mixture contains components with GHS H400, GHS H410, GHS H411, GHS H412, or GHS H413.
112	If the sum of Aquatic Acute Category 1 • M components (with GHS H400) $\geq 25\%$, the mixture is Aquatic Acute with GHS H400
113	If the sum of Aquatic Chronic Category 1 • M components $\geq 25\%$, the mixture is Aquatic Chronic Category 1 with H410
114	If the sum (M • 10 • Aquatic Chronic Category 1 components) + Aquatic Chronic Category 2 components $\geq 25\%$, mixture is Aquatic Chronic Category 2 with GHS H411
115	If the sum (M • 100 • Aquatic Chronic Category 1 components) + (10 • Aquatic Chronic Category 2 components) + Aquatic Chronic Category 3 components $\geq 25\%$, the mixture is Aquatic Chronic Category 3 with GHS H412
116	If the sum of Aquatic Chronic Category 1 component + Aquatic Chronic Category 2 components + Aquatic Chronic Category 3 components + Aquatic Chronic Category 4 components $\geq 25\%$, mixture is Aquatic Chronic Category 4 with GHS H413
Figure E-11 Hazardous for the ozone layer	
121	Mixture contains ODS (ozone depleting substances) components with GHS H420
122	One of the Xi of the ODS components is higher than 0.1%
Figure E-12 Effects on global warming (Applicable only to shipments to Europe)	
131	Mixture contains components with Global Warming Potential (GWP) value not equal to zero.
132	Are GWP components listed in EC Directive 842/2006 [19]?
133	<p>Is the GWP of the mixture > 150?</p> <p>The GWP of the mixture shall be calculated as follows:</p> $\sum (C_{GWP} (W\%) \times GWP_{value})$ $CGWP (W\%) = CGWP (Vol\%) \cdot MWG / \sum (C_i \cdot MW_i)$
Figure E-13 Simple asphyxiant per OSHA	
141	Review CGA C-7:2014 for appropriate hazard statements for mixture components.
142	Mixture is hazardous (contains at least one GHS hazard statement other than GHS H280).
143	<p>Quantity of oxygen in the mixture</p> <p>If $< 19.5\%$: Simple Asphyxiant (UN 1956 for transport)</p> <p>If $\geq 19.5\%$ but $\leq 23.5\%$ similar to air (UN 1002 if only oxygen and nitrogen; otherwise UN 1956 for transport)</p>

Appendix F—CGA 360 degree wrap around product guide for DOT-4L/TC-4LM and similar cylinders (Normative)

This appendix contains the requirement for 360 degree wrap around product decals for DOT-4L/TC-4LM and similar cylinders designed for cryogenic liquids. This decal is in addition to the product label containing hazard warnings and precautionary information, and transportation symbols.

Appendix F does not apply to:

- Large cryogenic vessels permanently mounted in vehicles;
- Small liquid oxygen cryogenic units used by patients for medical purposes; or
- Open topped nitrogen dewars.

F.1 General recommendations

Each container designed for cryogenic liquids, except those described previously as non-applicable, should be marked with a 360 degree decal to identify its contents. The decal should be marked continuously with the liquid product identification. The decal should be sized (minimum 2 in [51 mm] high letters) and spaced so that it is visible from all sides when not obstructed. Placement should be horizontal and just below the upper circumferential weld adhering to the cylinder sidewall. See Figure F-1 for an illustration of the decal (industrial oxygen is used as an example). See CGA SB-26, *Cylinder Connections on Portable Liquid Cryogenic Cylinders*, for additional requirements for these types of containers [18].

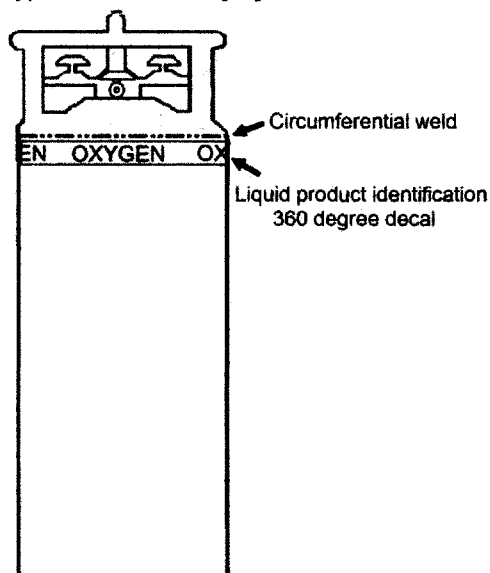


Figure F-1—Example of industrial cryogenic identity decal

F.2 Requirements for medical products

Large portable cryogenic containers of medical product shall be identified as follows:

- For oxygen—MEDICAL OXYGEN or OXYGEN, USP;
- For nitrogen—MEDICAL NITROGEN or NITROGEN, NF;
- For nitrous oxide—MEDICAL NITROUS OXIDE or NITROUS OXIDE, USP; or
- For carbon dioxide—MEDICAL CARBON DIOXIDE or CARBON DIOXIDE, USP.

F.3 Requirements for industrial products

Large portable cryogenic containers of industrial product shall be identified as follows:

- For oxygen—OXYGEN or OXYGEN, LIQUID or equivalent;
- For neon—NEON or NEON, LIQUID or equivalent;
- For nitrogen—NITROGEN or NITROGEN, LIQUID or equivalent;
- For nitrous oxide—NITROUS OXIDE or NITROUS OXIDE, LIQUID or equivalent;
- For helium—HELIUM or HELIUM, LIQUID or equivalent;
- For hydrogen—HYDROGEN or HYDROGEN, LIQUID or equivalent;
- For argon—ARGON or ARGON, LIQUID or equivalent; or
- For carbon dioxide—CARBON DIOXIDE or CARBON DIOXIDE, LIQUID or equivalent.

Appendix G—CGA-recommended hazard and precautionary phrases (Normative)

CGA developed the following phrases to convey additional information or to further clarify the hazards. Also listed are the equivalent GHS/OSHA codes that are being supplemented as appropriate.

Hazard Phrase Code	Equivalent GHS/OSHA Code	Phrase	Used on
OSHA-H01	OSHA	MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.	Label and SDS
CGA-HG01	None	MAY CAUSE FROSTBITE.	Label and SDS
CGA-HG03	None	MAY INCREASE RESPIRATION AND HEART RATE.	Label and SDS
CGA-HG04	None	MAY FORM EXPLOSIVE MIXTURES WITH AIR.	Label and SDS
CGA-HG08	None	BURNS WITH INVISIBLE FLAME.	Label and SDS
CGA-HG10	None	ASPHYXIATING EVEN WITH ADEQUATE OXYGEN.	Label and SDS
CGA-HG11	None	SYMPTOMS MAY BE DELAYED.	Label and SDS
CGA-HG13	P220	COMBUSTIBLES IN CONTACT WITH LIQUID OXYGEN MAY EXPLODE ON IGNITION OR IMPACT.	Label and SDS
CGA-HG16	None	EXTENDED EXPOSURE TO GAS REDUCES THE ABILITY TO SMELL SULFIDES.	Label and SDS
CGA-HG22	H370	CORROSIVE TO THE RESPIRATORY TRACT.	Label and SDS
CGA-HG23	None	EXTREMELY REACTIVE.	Label and SDS
CGA-HG24	None	SUPPORTS COMBUSTION.	Label and SDS
Precautionary Phrase Code	Equivalent GHS/OSHA Code	Phrase	Used on
OSHA-PG01	OSHA	DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).	Label
CGA-PG02	P410	Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).	Label and SDS
CGA-PG05	P201	Use a back flow preventive device in the piping.	Label and SDS
CGA-PG06	P201	Close valve after each use and when empty.	Label and SDS
CGA-PG10	P201	Use only with equipment rated for cylinder pressure.	Label and SDS
CGA-PG11	P403	Never put cylinders into unventilated areas of passenger vehicles.	Label and SDS
CGA-PG12	P201	Do not open valve until connected to equipment prepared for use.	Label and SDS
CGA-PG13	P201	Fusible plugs in top, bottom, or valve melt at 98 °C to 107 °C (208 °F to 224 °F). Do not discharge at pressures above 15 psi (103 kPa).	Label and SDS
CGA-PG17	P231	Use only with equipment purged with inert gas or evacuated prior to discharge from cylinder.	Label and SDS
CGA-PG18	P201	When returning cylinder, install leak tight valve outlet cap or plug.	Label and SDS
CGA-PG20	P201	Use only equipment of compatible materials of construction.	Label and SDS
CGA-PG21	P201	Open valve slowly.	Label and SDS
CGA-PG22	P201	Use only with equipment cleaned for oxygen service.	Label and SDS
CGA-PG23	P401	Always keep container in upright position.	Label and SDS
CGA-PG24	P201	DO NOT change or force fit connections.	Label and SDS
CGA-PG26	P201	Use insulated hoses and piping to avoid condensation of oxygen-rich liquid air.	Label and SDS

Precautionary Phrase Code	Equivalent GHS/OSHA Code	Phrase	Used on
CGA-PG27	P106	Read and follow the Safety Data Sheet (SDS) before use.	Label
CGA-PG28	P201	Avoid spills. Do not walk on or roll equipment over spills.	Label and SDS
CGA-PG29	None	Do not depend on odor to detect presence of gas.	Label and SDS
CGA-PG31	P235+P411	Decomposition Hazard: Store under dry ice.	Label and SDS
CGA-PG32	P201	Use only with equipment passivated before use.	Label and SDS
CGA-PG33	P201	Use behind barricades with remote extensions on valves and regulators.	Label and SDS
CGA-MP01	P304+P340 +P313	IF ACCIDENTLY INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.	Label and SDS

Alphabetical index of gas labels

Gas	Pages
1,1,1,2-Tetrachloro-2,2-difluoroethane (R112a)	16
1,1,1,2-Tetrafluoroethane (R134a)	15
1,1,2,2-Tetrachloro-1,2-difluoroethane (R112)	16
1,1,2,2-Tetrafluoro-1-Chloroethane (R124a)	16
1,1-Dichlorotetrafluoroethane (R114a)	16
1,1-Difluoroethane (R152a)	19
1,2-Dibromotetrafluoroethane (R114B2)	15
1,2-Dichlorodifluoroethylene (R1112a)	15
1,2-Dichlorohexafluorocyclobutane (RC316)	15
1,2-Dichlorotetrafluoroethane (R114)	16
1,3-Butadiene	29
1-Butene	19
1-Chloro-1,1-Difluoroethane (R142b)	19
1-Chloro-1,2,2,2-tetrafluoroethane (R124)	16
1-Chloro-2,2,2-trifluoroethane (R133a)	16
2,2 Dimethylpropane	31
2-Butene	19
3-Methyl-1-Butene	33
Acetylene	25
Air, Compressed	41
Allene	19
Ammonia, Anhydrous	72
Anhydrous Ammonia	72
Argon	14
Argon, Liquid	42
Argon, Refrigerated Liquid	42
Arsine	50
Artificial Atmosphere Medical Gas Mixtures	104
Blood Gas Mixture (nonflammable, nonoxidizing)	100
Blood Gas Mixture (nonflammable, oxidizing)	101
Boron Trichloride	60
Boron Trifluoride	62
Bromochlorodifluoromethane (R12B1)	16
Bromotrifluoromethane (R13B1)	16
Butane	19
Calibration Gas Mixtures	102
Carbon Dioxide	17
Carbon Dioxide USP	86
Carbon Dioxide, Liquid	43
Carbon Dioxide, Refrigerated Liquid	43
Carbon Monoxide	48
Carbonyl Sulfide	52
Chlorine	63
Chlorine Trifluoride	68
Chlorodifluoromethane (R22)	16
Chloroheptafluorocyclobutane (RC317)	15
Chloropentafluoroethane (R115)	16
Chloropentafluoroethane-Chlorodifluoromethane (R502)	16
Chlorotrifluoromethane (R13)	16
Compressed Air	41
Cyanogen	51
Cyclopropane	21
Deuterium	26
Deuterium Chloride	60
Deuterium Selenide	51
Diborane	55

Dichlorodifluoromethane	16
Dichlorofluoromethane (R21)	16
Dichlorosilane	64
Difluoromethane (R32)	24
Dimethyl Ether	23
Dimethylamine	74
Dimethylzinc	37
Dinitrogen Tetroxide	71
Disilane	36
Ethane	19
Ethyl Acetylene	19
Ethyl Chloride	32
Ethyl Methyl Ether	31
Ethylene	21
Ethylene Oxide	58
Fluorine	69
Gaseous and Liquid Nitrogen NF	87
Gaseous and Liquid Oxygen USP	86
Germane	49
Helium	14
Helium USP	86
Helium, Liquid	44
Helium, Refrigerated Liquid	44
Heptafluoropropane (R227)	15
Hexafluoroethane (R116)	15
Hexafluoropropylene (R1216)	15
Hydrogen	26
Hydrogen Bromide	60
Hydrogen Chloride	60
Hydrogen Cyanide	34
Hydrogen Fluoride	65
Hydrogen Iodide	60
Hydrogen Selenide	51
Hydrogen Sulfide	53
Hydrogen, Liquid	45
Hydrogen, Refrigerated Liquid	45
Isobutane	19
Isobutylene	19
Krypton	14
Laser Gases and Laser Gas Mixtures	103
Liquefied Petroleum Gas	19
Liquid Argon	42
Liquid Carbon Dioxide	43
Liquid Helium	44
Liquid Hydrogen	45
Liquid Neon	44
Liquid Nitrogen	42
Liquid Nitrous Oxide	47
Liquid Oxygen	46
Lung Diffusion Mixture (nonflammable, nonoxidizing)	98
Lung Diffusion Mixture (nonflammable, oxidizing)	99
Medical Air USP	87
Medical Mixtures	88, 89, 90, 91, 92, 93, 94, 98, 99, 100, 101, 102, 103, 104
Methane	27
Methyl Acetylene	19
Methyl Bromide	56
Methyl Chloride	28
Methyl Fluoride	19
Methyl Mercaptan	57

Methyl Vinyl Ether	20
Monoethylamine	74
Monomethylamine	74
Natural Gas	27
Neon	14
Neon, Liquid	44
Neon, Refrigerated Liquid	44
Nitric Oxide	70
Nitrogen	14
Nitrogen Dioxide (Dinitrogen Tetroxide)	71
Nitrogen NF, Gaseous and Liquid	87
Nitrogen Trifluoride	40
Nitrogen, Liquid	42
Nitrogen, Refrigerated Liquid	42
Nitrous Oxide	38
Nitrous Oxide USP	86
Nitrous Oxide, Liquid	47
Nitrous Oxide, Refrigerated Liquid	47
Octafluorocyclobutane (RC318)	15
Octafluoropropane (R218)	15
Oxygen	39
Oxygen USP, Gaseous and Liquid	86
Oxygen, Liquid	46
Oxygen, Refrigerated Liquid	46
Oxygen/Carbon Dioxide Medical Mixtures	92
Oxygen/Carbon Dioxide/Nitrogen Medical Mixtures (nonflammable, nonoxidizing)	93
Oxygen/Carbon Dioxide/Nitrogen Medical Mixtures (nonflammable, oxidizing)	94
Oxygen/Helium Medical Mixtures (nonflammable, nonoxidizing)	90
Oxygen/Helium Medical Mixtures (nonflammable, oxidizing)	91
Oxygen/Nitrogen Medical Mixtures (nonflammable, nonoxidizing)	88
Oxygen/Nitrogen Medical Mixtures (nonflammable, oxidizing)	89
Pentachlorofluoroethane (R111)	16
Pentafluoroethane (R125)	15
Phosgene	66
Phosphine	54
Propane	19
Propylene	19
Silane	35
Silicon Tetrafluoride	61
Sulfur Dioxide	60
Sulfur Hexafluoride	15
Tetrafluoromethane (R14)	14
Trichlorosilane	73
Trifluorochloroethylene (R1113)	59
Trifluoroethane (R143a)	19
Trifluoromethane (R23)	18
Trimethylamine	74
Tungsten Hexafluoride	67
Vinyl Bromide	29
Vinyl Chloride	30
Vinyl Fluoride	22
Xenon	14